

Connect SoCal

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



Draft Program Environmental Impact Report

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Draft Program Environmental Impact Report For The Southern California Association of Governments' 2024–2050 Regional Transportation Plan/Sustainable Communities Strategy

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Executive Summary

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Southern California Association of Governments (SCAG) has prepared an Executive Summary to the Connect SoCal 2024 Program Environmental Impact Report (2024 PEIR), in accordance with Section 15123 of the California Environmental Quality Act (CEQA) Guidelines.¹ The Executive Summary provides an overview of the proposed 2024–2050 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), referred to as “Connect SoCal 2024”, “Plan” or “Project”, its potential environmental impacts and mitigation measures, and a summary of the alternatives to the Plan evaluated in this 2024 PEIR. The summary is also required to identify areas of controversy known to the lead agency, including issues raised by agencies and the public, and issues to be resolved.

ES.1 INTRODUCTION

Connect SoCal 2024 is a long-range comprehensive plan for the region’s multi-modal transportation system. Preparing the Plan is one of SCAG’s primary statutory responsibilities under federal and state law. A regional transportation plan (RTP) is the mechanism used in California by both metropolitan planning organizations (MPO) and regional transportation planning agencies (RTPA) to conduct long-range planning (at least a 20-year forecast period) in their regions. SCAG must adopt an RTP and update it every four years, or more frequently, if the region is to receive federal and state transportation dollars for public transit, streets/roads, and bicycle and pedestrian improvements.

In 2008, California enacted the Sustainable Communities and Climate Protection Act, also known as Senate Bill 375 (SB 375) (Statutes 2012, Chapter 728), which requires MPOs to include a Sustainable Communities Strategy (SCS) element as part of their RTP updates, with the purpose of identifying policies and strategies to reduce per capita automobile and light-duty truck GHG emissions. The SCS is required to identify the general location of land uses, residential densities, and building intensities within the region; identify areas within the region sufficient to house all the population of the region; identify areas within the region sufficient to house an eight-year projection of the regional housing need (Government Code Section 65584.01(et seq.); identify a transportation network to service the regional transportation needs; gather and consider the best practically available scientific information regarding resources areas and farmland in the region; consider the state housing goals; set forth a forecasted development pattern for the region; and allow the regional transportation plan to comply with the federal Clean Air Act (CAA) of 1970 (42 USC 7401 et seq.) (Government Code Section 65080(b)(F)(2)(B)), of which, when integrated with the transportation network, and other transportation measures and policies will reduce the GHG from automobiles and light duty trucks to achieve, if there is a reasonable way to do so, the GHG emission reduction targets approved by the California Air Resources Board (CARB). If the SCS does not achieve the GHG emission targets set by CARB, an Alternative Planning Strategy (APS) must be developed to demonstrate how the targets could be achieved.

In 2012, SCAG adopted its first combined RTP/SCS, a long-range plan for transportation in the region that links air quality, land use, and transportation needs. The RTP/SCS was last updated in 2020. The Plan updates the growth forecast, land use assumptions, and transportation investments that served as the foundation of the 2012, 2016, and 2020 plans.

Connect SoCal 2024 represents the vision for the region and reflects the planned transportation investments, policies and strategies that will integrate with the forecasted development pattern to achieve the Plan’s goals. Key components include a growth forecast and regional development pattern based on population, household and

¹ The CEQA Guidelines are codified at Title 14, California Code of Regulation 15000 et seq.

employment growth projections for the SCAG region by 2050; a transportation network including a list of transportation projects and investments; and a set of Regional Planning Policies and Implementation Strategies to meet the Plan's goals and performance requirements. The Plan was developed to achieve targets for greenhouse gas (GHG) emissions reductions, consistent with SB 375 and other regional goals.

The Plan further identifies the purpose and goals, tracks trends and evaluates project performance, details financial assumptions and expenditures, and profiles key transportation investments. See the Draft Connect SoCal 2024 and supplementary technical reports for full details at SCAG's Connect SoCal 2024 website located at <https://www.connectsocial.org/Pages/default.aspx>.

ES.2 PROJECT BACKGROUND

Founded in 1965, SCAG is a federally designated Metropolitan Planning Organization (MPO) under 23 USC 134(d)(1), for the six-county region. SCAG is designated under California state law as a Council of Governments (COG) and a Regional Transportation Planning Agency (RTPA) for the six-county region. SCAG is a Joint Powers Authority, established as a voluntary association of local governments and agencies.

As stated previously, SCAG develops the long-range RTP including sustainable communities strategy and growth forecast component, regional transportation improvement program, regional housing needs allocation (RHNA) and assists in the development of the South Coast Air Quality Management Plans. In 1992, SCAG expanded its governing body, the Executive Committee, to a 70-member Regional Council to help accommodate new responsibilities mandated by the federal and state governments, as well as to provide more broad-based representation of Southern California's cities and counties. With its expanded membership structure, SCAG created regional districts to provide for more diverse representation. The districts were formed with the intent to serve equal populations and communities of interest. Currently, the Regional Council consists of 86 elected officials, representing 67 Districts that include an elected representative of one or more cities of approximately equal population levels. Membership in SCAG's Regional Council also includes representation from each county Board of Supervisors and one representative from the Southern California Native American Tribal Governments. Additionally, SCAG Bylaws provide for representation of transit interests of all of the operators, and Air Districts in the region on the Regional Council and Policy Committees.

The Regional Council has general authority to conduct the affairs of SCAG and directs the actions of the agency throughout the year. Additionally, the Regional Council implements the policy direction provided at the annual General Assembly of the membership, acts upon policy recommendations from SCAG's standing policy committees and external agencies, and appoints standing or ad-hoc subcommittees to study specific programs or issues.

In addition to the six counties and 191 cities that make up SCAG's region, there are six County Transportation Commissions that hold the primary responsibility for programming and implementing transportation projects, programs, and services in their respective counties.

ES.3 REGIONAL LOCATION AND GENERAL SETTING

REGIONAL LOCATION

The SCAG region consists of six counties that includes Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura, and 191 cities (see **Map ES-1, SCAG Region**, below). The total area of the SCAG region is approximately 38,000 square miles. Additionally, the SCAG region consists of 15 sub-regional entities that have been recognized by the Regional Council, as partners in the regional policy planning process (see **Map ES-2, SCAG Subregions**, below). The SCAG region is home to approximately 19 million people. This represents 5.8 percent of the 328 million people in the United States and 48 percent of California's population (SCAG 2023). To the north of the SCAG region are the counties of Kern and Inyo; to the east is State of Nevada and State of Arizona; to the south is the U.S.-Mexico border; to the west is the county of San Diego; and to the northwest is the Pacific Ocean. The region includes the county with the largest land area in the nation, San Bernardino County; as well as the county with the highest population in the nation, Los Angeles County.

The following provides a brief summary of the size and population of each of the six counties in the SCAG region in 2019 (SCAG 2023).

- **Imperial County.** Imperial County covers an area of 4,482 square miles. El Centro is the city with the highest population level in the county, with a 2019 population of approximately 44,600 people. Overall, the county had 181,000 residents in 2019.
- **Los Angeles County.** Los Angeles County covers an area of 4,751 square miles. Los Angeles is the city with the highest population level in the county, with approximately 3,907,300 people in 2019. Overall, the county had 10,046,000 residents in 2019.
- **Orange County.** Orange County covers an area of 948 square miles. Anaheim is the city with the highest population level in the county, with approximately 347,000 people in 2019. Overall, the county had 3,191,000 residents that year.
- **Riverside County.** Riverside County covers an area of 7,303 square miles. Riverside is the city with the highest population level in the county, with a 2019 population of approximately 311,100 people. Overall, the county had 2,386,000 residents in 2019.
- **San Bernardino County.** San Bernardino County covers an area of 20,105 square miles. San Bernardino is the city with the highest population level in the county, with a 2019 population of approximately 221,200 people. Overall, the county had 2,175,000 residents in 2019.
- **Ventura County.** Ventura County covers an area of 2,208 square miles. Oxnard is the city with the highest population level in the county, with approximately 202,700 people as of 2019. Overall, the county had 849,000 residents in 2019.

GENERAL SETTING

TRANSPORTATION NETWORK

The region's transportation network comprises more than 33,485 miles of bus routes, including local bus, express and bus rapid transit (BRT), over 5,000 miles of bikeways, over 73,000 lane miles of roadways, and 135 miles of express lanes (see **Map ES-3, Existing Arterial System, 2019**, below). The Ports of Los Angeles and Port of Long

Beach are the largest container importers in the Western Hemisphere that contribute to our expansive goods movement system. The region’s aviation system is one of the busiest in the world in terms of air passenger and cargo demand, with more than 116.5 million annual passengers and 3.53 million tons of cargo in 2019. Southern California features:

- 115 miles of heavy and light rail
- 885 miles of commuter rail (including 538 miles of Metrolink rail)
- 33,485 miles of bus routes (including local bus, rapid bus, and bus rapid transit routes)
- Over 5,000 miles of bikeways
- Over 73,000 total lane miles of roadways
- 2,302 miles of express bus lanes
- 161 miles of high-occupancy toll (HOT) roads

LAND USES

The SCAG region is comprised of complex patterns of land uses including residential, commercial/office, industrial, institutional, agricultural, and open space land uses. The region has incredible diversity in its built environment and land use patterns (see **Map ES-4, Existing Land Use**, below). As of 2019, the SCAG region has a total of approximately 6.2 million households in its housing stock, with over half of the households having been built before 1980. While 54 percent are single-family homes, 46 percent are multifamily homes such as condominiums, townhouses, and apartments. The total amount of housing production has historically lagged behind the region’s growing population. There are many contributors to the overall housing shortfall, such as zoning, costs and fees that prevent projects from being feasible, time delays, environmental litigation, community resistance to medium and high-density projects, and lack of local funding mechanisms. The impacts of the housing crisis are disproportionately burdensome on underserved communities, such as low-income households and communities of color.

The six counties within the SCAG region contain nearly 22 million acres of “open space” combined. These lands include the region’s national forests, state parks, military installations, other public lands, and various private holdings. These areas provide important environmental services, including storing and providing clean drinking water, reducing pollution, and mitigating urban heat-island effects. Much of the open space in the region has been left in its natural state, however many non-native species have transformed what was once native habitat. As of 2018, about half of California has been mapped and classified according to this standard; much of southern California has not yet been classified (CDFW 2023). Barriers to wildlife movement exist throughout the SCAG region, including large areas of urban development and multilane freeways that cut off regional movement for migratory and resident species alike. These barriers can affect all species from large mammals to small insects and can lead to significant degradation of ecosystem function and plant community composition.

More than 20 million acres of open space within the SCAG region is currently protected under a Habitat Conservation Plan or Natural Community Conservation Plan or will be protected by a future conservation plan that is currently in its planning stages. Data from CDFW and USFWS show 31 plans with durations of 16–80 years providing conservation efforts nearly 3 million acres in the SCAG region. As a group, these plans provide protection for multiple species by conserving habitats, identifying locations for future mitigation efforts, providing conservation guidance and practices, and preserving important wildlife linkages.

ES.4 PROJECT DESCRIPTION

The Plan is an update to SCAG's 2020 RTP/SCS, which was adopted by SCAG's Regional Council for all purposes on September 3, 2020. Building upon the progress made since the 2020 RTP/SCS, Connect SoCal 2024 is a long-range visioning plan for the six-county SCAG region, reflecting a continuation of the shift towards more efficient resource management including transportation infrastructure resources, land resources and environmental resources. The Plan highlights the existing land use and transportation conditions throughout the SCAG region and forecasts the region's evolving transportation needs between 2024 and 2050. The Plan identifies and prioritizes expenditures of the anticipated funding for transportation projects of all transportation modes: highways, streets and roads, transit, rail, bicycle, and pedestrian, as well as aviation ground access.

The Plan was also developed to achieve targets for greenhouse gas (GHG) emissions reductions, consistent with SB 375 and other regional goals. In accordance with federal fiscal constraint requirements, Connect SoCal 2024 is a financially constrained Plan in terms of transportation revenues and expenditures.

Connect SoCal 2024 represents the vision for the region and reflects the planned transportation investments, policies and strategies that will integrate with the Forecasted Regional Development Pattern to achieve the Plan's goals. Key components include a growth forecast and regional development pattern based on population, household and employment growth projections for the SCAG region by 2050; a transportation network including a list of transportation projects and investments; and a set of Regional Planning Policies and Implementation Strategies to meet the Plan's goals and performance requirements.

The Plan further identifies the purpose and goals, tracks trends and evaluates project performance, details financial assumptions and expenditures, and profiles key transportation investments. See the Draft Connect SoCal 2024 and supplementary technical reports for full details at SCAG's Connect SoCal 2024 website located at: <https://scag.ca.gov/connect-socal>.

ES.4.3 PLAN VISION AND GOALS

Connect SoCal 2024 represents the vision for the region and reflects the planned transportation investments, policies and strategies that will integrate with the Forecasted Regional Development Pattern to achieve the Plan's goals. The vision and goals for Connect SoCal 2024 are rooted in the direction set forth by Connect SoCal 2020, reflecting both SCAG's statutory requirements and the emerging trends and persistent challenges facing the region.

SCAG's vision for Southern California in the year 2050 is:

"A healthy, prosperous, accessible and connected region for a more resilient and equitable future."

The following are the goals and subgoals of Connect SoCal 2024 designed to help SCAG achieve this vision:

Mobility: Build and maintain a robust transportation network

- Support investments that are well-maintained and operated, coordinated, resilient and result in improved safety, improved air quality and minimized greenhouse gas emissions
- Ensure that reliable, accessible, affordable and appealing travel options are readily available, while striving to enhance equity in the offerings in high-need communities
- Support planning for people of all ages, abilities and backgrounds

Communities: *Develop, connect and sustain communities that are livable and thriving*

- Create human-centered communities in urban, suburban and rural settings to increase mobility options and reduce travel distances
- Produce and preserve diverse housing types in an effort to improve affordability, accessibility and opportunities for all households

Environment: *Create a healthy region for the people of today and tomorrow*

- Develop communities that are resilient and can mitigate, adapt to and respond to chronic and acute stresses and disruptions, such as climate change
- Integrate the region's development pattern and transportation network to improve air quality, reduce greenhouse gas emissions and enable more sustainable use of energy and water
- Conserve the region's resources

Economy: *Support a sustainable, efficient and productive regional economic environment that provides opportunities for all residents*

- Improve access to jobs and educational resources
- Advance a resilient and efficient goods movement system that supports the economic vitality of the region, attainment of clean air and quality of life for our communities

ES.4.4 REGIONAL GROWTH FORECAST AND FORECASTED REGIONAL DEVELOPMENT PATTERN

As part of developing a Sustainable Communities Strategy per SB 375, SCAG must include a “forecasted development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies...” will enable SCAG to reach its GHG emission reduction target of 19 percent below 2005 levels by 2035.

SCAG prepared a Forecasted Regional Development Pattern for Connect SoCal 2024 which details where people, households and employment will be located through 2050, the horizon year of the Plan (see **Map ES-5, Forecasted Regional Development Pattern**, below). The regional growth forecast determines the projected increase in population, households, and jobs based on local general plans and known development entitlement agreements, including available data from 6th cycle housing element updates.² In addition, regional sustainability strategies, including priority growth and environmentally constrained areas were included based on Connect SoCal 2020. The forecast reflects changes to state- and local-housing-supportive policy as well as stronger housing production numbers in recent years, including ADUs which are historically undercounted. In addition to far more

² The Connect SoCal Regional Growth Forecast begins with an expert assessment of regional demographic and economic trends and uses a variety of data sources—including local land use plans—to assess where growth is most likely to occur within the region, emphasizing a balance between future employment, population, and households. SCAG's RTP/SCS growth forecasting process is also informed by the Regional Growth Vision and integrates input from local jurisdictions. As discussed above, SCAG's preliminary growth forecast at the jurisdiction and neighborhood levels, released on May 23rd, 2022, sought to reflect capacity changes from the 6th cycle of RHNA based on available housing elements and information from jurisdictions. SCAG used its best efforts to incorporate the RHNA, but the data is inherently incomplete because only 12 of 197 jurisdictions had certified housing elements, and some local jurisdictions may not be required to complete rezoning associated with housing elements until October 2024. However, it is expected that household growth over the Connect SoCal 2024 horizon will exceed the 6th cycle RHNA housing unit need.

near-term household growth, the Forecasted Regional Development Pattern also demonstrates housing growth in generally more sustainable locations within the region than Connect SoCal 2020.

The regional and county growth forecasts reflect recent and past trends and expert-derived demographic and economic assumptions. In contrast to short-range forecasts, which focus on business cycles and market trends, a 30-year time horizon relies more heavily on births, deaths, migration, and the strength of a region’s economic base compared to the nation as a whole. Due to changes in these trends and assumptions, SCAG is projecting just over half the level of population growth over this Plan’s horizon as compared to what was anticipated in Connect SoCal 2020 (**Table ES-1, 2019–2050 Population, Households and Employment Projects in the SCAG Region**).

TABLE ES-1 2019–2050 Population, Households, and Employment Projections in the SCAG Region

COUNTY NAME	POPULATION 2019	POPULATION 2050	PERCENTAGE INCREASE	HOUSEHOLDS 2019	HOUSEHOLDS 2050	PERCENTAGE INCREASE	EMPLOYMENT 2019	EMPLOYMENT 2050	PERCENTAGE INCREASE
Imperial	181,000	210,000	16%	52,000	72,000	39%	69,000	91,000	32%
Los Angeles	10,046,000	10,767,000	7%	3,393,000	4,139,000	22%	5,031,000	5,433,000	8%
Orange	3,191,000	3,439,000	8%	1,069,000	1,253,000	17%	1,805,000	2,019,000	12%
Riverside	2,386,000	2,992,000	25%	744,000	1,062,000	43%	847,000	1,185,000	40%
San Bernardino	2,175,000	2,623,000	21%	657,000	953,000	45%	860,000	1,145,000	33%
Ventura	849,000	852,000	<1%	278,000	318,000	14%	363,000	476,000	31%
SCAG Region	18,827,000	20,882,000	11%	6,193,000	7,798,000	26%	8,976,000	10,248,000	14%

Source: SCAG 2023

Consistent with global trends, the older-age population of the SCAG region is steadily growing. Older people tend to live alone or in smaller households, have different transportation and spending patterns, and lower labor force participation.

From 2000 to 2019, population in the SCAG region increased by nearly 2.3 million people. Riverside County had the largest share of population growth among the six counties in the SCAG region during this period, adding approximately 829,000 new residents (approximately 37 percent of the region’s increase in population during that time period). Los Angeles County followed with the next largest share and experienced an increase of approximately 502,000 new residents (nearly 22 percent of the region’s increase in population).

SCAG has the opportunity to analyze and address the inequities that the government, planning profession, and others have created by systemically driving and perpetuating societal differences along racial lines. These inequities have resulted in vastly different living and social conditions, as well as less access to opportunities. SCAG considers potential impacts on people of color and low-income households in the regional growth, transportation and economic development planning and analysis, and recognizes that more affirmative approaches that seek to counter the effects of historic practices are needed to advance equity and social justice across the region. The Regional Planning Policies and Implementation Strategies start to address these issues.

PRIORITY DEVELOPMENT AREAS

Priority Development Areas (PDAs) are areas within the SCAG Region where future growth can be located in order to help the region reach mobility and environmental goals (see **Map ES-6, Priority Development Areas**, below). Generally, this means that people in these areas have access to multiple modes of transportation or trip origins and destinations are closer together, thereby allowing for shorter trips. These areas would accommodate 69 percent of forecasted population growth, 67 percent of forecasted household growth, and 55 percent of forecasted employment growth between 2019 and 2050. PDAs account for 4.8 percent of the region's total land area and include Transit Priority Areas (TPAs), Neighborhood Mobility Areas (NMAs), Livable Corridors and Spheres of Influence (SOIs) (in unincorporated areas only). 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.

GREEN REGION RESOURCE AREAS

Green Region Resource Areas (GRRAs), which derive from SB 375 statute and SCAG's role in the protection of resource areas and farmland, are considered alongside the PDAs in the preparation of SCAG's Forecasted Regional Development Pattern. The GRRAs are a set of place-specific indicators of hazard and sensitivity in which growth would normally not advance SB 375 objectives. Generally – but not exclusively – these areas reflect the urban-rural fringe away from existing developed areas (see **Map ES-7, Green Region Resource Areas**, below). Thus, reducing growth there has the co-benefit of reducing growth far from jobs and destinations. As the region faces unprecedented challenges in balancing housing and employment growth with resource conservation, the preservation and restoration of GRRAs can reduce risks from climate change and promote future resilience in the region. GRRAs consist of the following ten topic areas: Flood Areas; Coastal Inundation (Sea Level Rise); Wildfire Risk; Open Space and Parks; Endangered Species and Plants; Sensitive Habitat Areas; Natural Community and Habitat Conservation Plans; Tribal lands; Military Installations; and Farmlands.

ES.4.5 PROJECT LIST

Connect SoCal 2024 includes approximately \$750 billion of investment in our regional transportation system. SCAG collects projects submitted by County Transportation Commissions (CTCs), based on their county or district level needs and goals. These submissions generally align with the Regional Goals and do not undergo an additional selection process. SCAG assesses transportation performance at the system level. The Connect SoCal 2024 Project List Technical Report (included in the Plan) includes approximately 2,000 projects with both near-term and long-term investments: the Federal Transportation Improvement Program (FTIP) reflects near-term investments which form the foundation of the RTP project investment strategy and represents the first six years of already-committed funding for projects requiring federal approval or those that are regionally significant. The RTP reflects long-term investments and contains a financially constrained set of transportation projects above and beyond the FTIP, including projects submitted from the CTCs and additional Regional Strategic Investments needed to achieve the Plan's goals and performance targets.

ES.4.6 REGIONAL STRATEGIC INVESTMENTS

There is a gap between what can be achieved beginning at the local level and what must be achieved to meet performance requirements. The gap is addressed through a set of Regional Strategic Investments, supported by Regional Planning Policies and Implementation Strategies. Connect SoCal 2024 includes proposed strategies for

transportation investments. Regional Strategic Investments reflect what is necessary to maintain a state of good repair of our existing network, support a multimodal network, and fund system improvements and maintenance. For a full list of Regional Strategic investments, see Chapter 3 of the Plan.

ES.4.7 REGIONAL PLANNING POLICIES AND IMPLEMENTATION STRATEGIES

The Plan includes project lists from County Transportation Commissions and future land use and growth information from local jurisdictions. These provide the foundation for the Plan elements and the shape where the region is headed. As noted above, there is a gap between what can be achieved from a bottom-up process and what must be achieved to meet the performance requirements. This gap is addressed through the Regional Strategic Investments and supported by Regional Planning Policies and Implementation Strategies, which are discussed below.

REGIONAL PLANNING POLICIES

SCAG developed a set of Regional Planning Policies to guide decision-making in the region that aligns with the Plan's vision and achievement of the goals. The Regional Planning Policies establish broad regional policies for integrated land use and transportation planning and identify the path towards realizing the vision of Connect SoCal 2024. The policies carry forward priorities that have been refined over several planning cycles to promote a multimodal transportation system and sustainable land use and development. Implementation of the policies at the regional and local level will address emerging issues facing the region and achieve the vision represented by Connect SoCal 2024.

The policies are meant to guide decision making for both SCAG and partner agencies to achieve a sustainable, equitable, and resilient future for the region. The policies are also intended to be used as a resource by CTCs or local jurisdictions to demonstrate alignment with the RTP/SCS in seeking resources from state or federal programs.

Per Government Code Section 65080(b)(2)(K), SCAG's SCS does not regulate the use of land, nor shall it be interpreted as superseding the exercise of the land use authority of cities and counties in the region. The guidance provided in the Plan's Regional Planning Policies is meant to support local jurisdictions in future General Plan updates to help in implementing the regional vision of Connect SoCal 2024.

Table 2-2, Connect SoCal 2024 Regional Planning Policies, in Chapter 2, *Project Description*, provides the Regional Planning Policies that will guide the integration of land use and transportation planning to realize the vision of the Plan. The table also indicates the PEIR section that is relevant to each Regional Planning Policy.

IMPLEMENTATION STRATEGIES

The Implementation Strategies provided in Table 2-3, Connect SoCal 2024 Implementation Strategies, in Chapter 2 of this 2024 PEIR articulate priorities for SCAG to implement Connect SoCal 2024 by fulfilling or going beyond the related Regional Planning Policies. The SCAG related strategies represent near term efforts for the successful implementation of the Plan. These Implementation Strategies rely on partnership and support with agencies and decisions makers in the region. The table also indicates the PEIR section that is relevant to each Implementation Strategy.

ES.2.8 FINANCIAL PLAN

In accordance with federal fiscal constraint requirements, Connect SoCal 2024 is a financially constrained Plan in terms of transportation revenues and expenditures. Connect SoCal 2024 identifies the amount of funding that is reasonably expected to be available to build, operate, and maintain the region's surface transportation system through the forecast horizon year of 2050.

The financially constrained Connect SoCal 2024 includes both a "traditional" core revenue forecast comprised of existing local, state, and federal sources, and more innovative but reasonably available sources of revenue. The core revenues identified are existing transportation funding sources projected to Fiscal Year (FY) 2049-50. The core revenue forecast does not include assumptions about any future increases in state or federal gas excise tax rates or adoptions of regional gasoline taxes, mileage-based user fees and/or new tax measures. These core revenues provide a benchmark from which additional funding can be identified. Federal guidelines permit the inclusion of new revenues that are reasonably likely to materialize within the Connect SoCal 2024 timeframe. Further, the financial plan includes strategies for ensuring the availability of these sources. These sources include adjustments to existing federal gas tax rates to compensate for loss of purchasing power; the eventual replacement of existing state and federal gas excise taxes with a more direct mileage-based user fee; federal credit assistance and bond proceeds; private investment participation; a localized road charge option; and value capture strategies. Key among these strategies is a transition away from fuel tax-based revenues and an increased reliance on user fees for various transportation facilities in the region.

The Plan's core revenues through year 2050 total approximately \$588 billion, or approximately 78 percent of total projected revenue sources. New and innovative revenues total approximately \$162 billion, or 22 percent of the projected revenues through 2050. The financial plan's forecast of core revenue totals approximately \$750 billion from both core and new reasonably available resources. Local sources comprise approximately half of the funding and the largest share of core revenues, followed by state sources which comprise roughly a quarter of revenue, while federal sources total less than ten percent of revenue. Capital projects and other programs total \$280.2 billion in nominal dollars. Operations and maintenance (O&M) costs total \$450.1 billion, while debt service obligations total \$19.7 billion. Transit-related costs comprise the largest share of O&M costs for the region, totaling approximately \$250 billion.

ES.2.9 PERFORMANCE MEASURES

Federal policy requires that SCAG set performance measures and targets in Connect SoCal 2024. As required under MAP-21, in 2016 and 2017 the Federal Highway Administration (FHWA) issued national performance measures and guidelines for use in the setting of statewide and regional performance targets. The FHWA rule-making process established a four-year performance target setting and reporting cycle, with a two-year mid-term progress evaluation point. SCAG coordinated closely with Caltrans in the establishment of specific performance targets for the state and for our region in the various transportation performance areas established under MAP-21. These targets provide quantifiable objectives to achieve each measure during the performance period.

The Plan has several performance measures that are closely tied to its vision, goals and guiding policies. These ensure that the implementation of the Plan moves the SCAG region closer to achieving these vision, goals and policies. Plan performance is measured under 25 categories. These performance measures are built upon but updated from those developed for the 2020 RTP/SCS to ensure that there is consistency when tracking and assessing the region's performance and whether this is meeting and exceeding federal and state requirements. It

is also intended to help quantify regional goals, estimate potential impacts of proposed investments, and evaluate progress over time. Recognizing that the proposed land use and transportation strategies are expected to have impacts beyond those that are exclusively transportation-related, the health outcome was first introduced in the 2012 RTP/SCS and was also addressed in the 2016 and 2020 RTP/SCSs. These health-related measures are tied with the proposed transportation investments in transit, and transportation, more walkable communities, and land use strategies, which focus new housing and employment in the region's PDAs, including TPAs, livable corridors neighborhood mobility areas, and SOIs.

ES.5 PLAN ALTERNATIVES

CEQA requires an environmental impact report (EIR) to describe a range of reasonable alternatives to the project or project location that could feasibly avoid or substantially lessen significant environmental impacts of the project while attaining most of the basic project objectives (CEQA Guidelines; California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15126.6, 2005). Plan alternatives are evaluated as to how well they feasibly achieve most of the goals, policies, and objectives, the extent of their environmental impacts compared to the Plan, and whether or not they reduce or eliminate significant impacts caused by the Plan. These alternatives include:

ALTERNATIVE 1: NO PROJECT ALTERNATIVE

The No Project Alternative is required by CEQA Guidelines Section 15126.6I(2) and assumes that the Plan would not be implemented. The No Project Alternative allows decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project. The No Project Alternative evaluates "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (CEQA Guidelines Section 15126.6(e)(2)). The projected impacts of the Plan are compared to the impacts from the continuation of the existing plan (CEQA Guidelines Section 15126.6(e)). The No Project Alternative is aligned with the baseline discussion in the Plan and includes transportation projects that are in place at the time of preparation of Connect SoCal 2024 and that are included in the first two years of the previously conforming transportation plan and/or FTIP. "Exempt projects" include safety projects and certain mass transit projects, transportation control measures (TCM) that are approved by the State Implementation Plan (SIP), and project phases that were authorized by the Federal Highway Administration (FHWA)/Federal Transportation Agency (FTA) prior to expiration of SCAG's conformity finding for the adopted Connect SoCal 2024. These exempt projects would also be included in the No Project Alternative since they could move forward in the absence of an adopted Connect SoCal 2024 (FHWA 2010).

The land use strategies included in the No Project Alternative are based on the existing land use plans and trending socioeconomic growth projection to the future (2050) updated with the same jurisdictional local input population, household, and employment data as those in Connect SoCal 2024 to reflect the most recent local input growth estimates in the region.

ALTERNATIVE 2: INTENSIFIED LAND USE ALTERNATIVE

The Intensified Land Use Alternative (also referred to as "Alternative 2") is based on more aggressive land use development patterns than the Plan. The land use pattern in this alternative would be denser and build on land use strategies described in the Plan by increase growth around PDAs and beyond to maximize transit opportunities. The focus of this alternative is on increased densities adjacent to existing employment and transportation infrastructure, which would lead to fewer and shorter trips and therefore a reduction in VMT as

compared to the Plan. Specifically, the growth pattern associated with this alternative optimizes growth in PDAs, including in urban areas and suburban town centers, transit-oriented developments (TODs), transit priority areas (TPAs), livable corridors, and neighborhood mobility areas (NMAs). It includes a greater progressive job-housing distribution optimized for TODs and infill in PDAs. It includes the same transportation investments as the Plan. This alternative considers the basis of the Plan with enhancements to accelerate the SB 375 GHG emissions reduction trend into 2050 and beyond, and includes related improvements for air quality, livability, public health, active transportation opportunities, and affordability.

SUMMARY OF ALTERNATIVES COMPARISON

As discussed in Chapter 4, *Alternatives*, the summary comparison for the No Project Alternative, Intensified Land Use Alternative, and the Plan is presented in Error! Reference source not found.7, **Comparison of Significant Adverse Environmental Impacts for Connect SoCal 2024 and Alternatives** which summarizes the relative level of environmental impacts associated with each alternative as compared to the Plan based on the CEQA Guidelines Appendix G significance threshold questions used to analyze Plan's environmental impacts in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures* of this 2024 PEIR. For each resource area evaluated, Table 4-7 summarizes whether the impacts of the alternative would generally result in greater or lesser impacts than those of the Plan.

Chapter 4, *Alternatives*, also presents an evaluation of the environmentally superior alternative. Of the two alternatives, the Intensified Land Use Alternative would be considered the environmentally superior alternative due to fewer impacts resulting from the more compact land use development pattern, including reduced VMT and GHG emissions. However, this alternative requires implementation of the same mitigation measures required for the Plan and would not resolve any of the significant and unavoidable impacts of the Plan.

Ultimately, the Plan is the preferred alternative because it balances local input with the need to increase densities, complies with federal transportation conformity requirements for the RTP, and reduces GHG emissions consistent with SB 375 targets for the SCS, thereby achieving the Plan goals and objectives. While additional densities in urban areas could further reduce GHG emissions, such increased densities may not be consistent with existing General Plans and local planning policies.

ES.6 AREAS OF KNOWN CONTROVERSY

A Notice of Preparation (NOP) for this 2024 PEIR was issued on October 17, 2022, by SCAG for a 30-day public review period. A total of 16 comment letters were received. The NOP and copies of each comment letter received are included in **Appendix A** of the 2024 PEIR. Two scoping meetings were held on November 9, 2022, at 6:00 p.m. to 8:00 p.m., and on November 10, 2022, at 10:00 am to 12:00 pm. The purpose of these meetings was to provide early consultation for the public to express their concerns about the project and acquire information and make recommendations on issues to be addressed in the 2024 PEIR. In accordance with Sections 15087 and 15105 of the CEQA Guidelines, the public review period cannot be less than 45 days. This Connect SoCal 2024 Draft PEIR will be circulated for a 65-day public review period from November 9, 2023, to January 12, 2024. Responsible and trustee agencies and the public are invited to comment in writing on the information contained in this document. Persons and agencies commenting are encouraged to provide information that they believe is missing from the Draft 2024 PEIR and to identify where the information can be obtained. All comment letters received concerning the 2024 PEIR will be responded to in writing, and the comment letters, together with the responses to those comments, will be included in the Final 2024 PEIR.

Comments received in response to the published NOP (provided in Appendix A) identified environmental topics that local and regional agencies and City residents recommended for analysis in the Draft EIR.

Both PEIR and Plan topics were raised by the commenters on the NOP. SCAG received 50 individual comments related to the PEIR and 30 individual comments on the Plan. A breakdown of the NOP comments by PEIR and Plan topic areas is presented below in **Table ES-2, Summary of NOP Comments by Topic Areas**. The NOP and comments received on the NOP will be included in an appendix to the Draft PEIR document.

TABLE ES-2 Summary of NOP Comments by Topic Areas*

DOCUMENT	TOPIC AREAS	NUMBER
PEIR	Project Description	7
	Air Quality	2
	Biological Resources	1
	Cultural Resources	2
	Greenhouse Gas Emissions	4
	Hydrology and Water Quality	1
	Population and Housing	3
	Recreation	3
	Transportation	4
	Tribal Cultural Resources	2
	Utilities and Service Systems	2
	Wildfire	1
	Mitigation Measures	7
	Alternatives	5
	PEIR Development Process	4
Findings of Fact/Statement of Overriding Considerations	1	
Plan (Connect SoCal 2024)	Plan Requirements	2
	Plan Development Process	3
	Plan Goals and Performance Measures	4
	Transportation Planning	5
	Transportation Conformity	2
	Forecasted Regional Development Pattern	8
	Climate and Resilience	4
Data	2	

Table Note:

* Table does not include comments from the California Coastal Commission in the breakdown because their comments, which were submitted to SCAG on November 16, 2022, were dated February 21, 2019, in response to the NOP of Connect SoCal 2020 (2020 RTP/SCS) PEIR (State Clearinghouse No.: 2019011061).

ES.7 ISSUES TO BE RESOLVED

The CEQA Guidelines require an EIR to present issues to be resolved by the lead agency. These issues include the choice between alternatives and whether or how to mitigate potentially significant impacts. The major issues to be resolved by SCAG, as the lead agency for the project include the following:

- Whether the recommended mitigation measures should be adopted or modified;
- Whether additional mitigation measures need to be applied to the project; and
- Whether the project or an alternative should be approved.

ES.8 SUMMARY OF PROJECT IMPACTS

A summary of the environmental impacts associated with implementation of the proposed project, mitigation measures included to avoid or lessen the severity of potentially significant impacts, and residual impacts, is provided in **Table Es-3, Summary of Project Impacts, Mitigation Measures, and Residual Impacts**, below.

SCAG has no concurrent land use authority or jurisdiction to implement mitigation related to land use plans and projects that implement the Plan. With respect to the transportation projects included in the Plan, 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. SCAG also has no authority or jurisdiction to require these agencies to implement project-specific mitigation measures.

As discussed in detail in Chapter 1, *Introduction*, CEQA case law has held that deferral of the specifics of mitigation is permissible where the lead agency commits itself to mitigation and, in the mitigation measure, either describes performance standards to be met in future mitigation or provides a menu of alternative mitigation measures to be selected from in the future.

Furthermore, CEQA Guidelines Section 15126.4(a)(1)(B) provides:

“Formulation of mitigation should not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project’s environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure.”

Moreover, with respect to greenhouse gas emissions in the case of adoption of a plan to reduce greenhouse gas emission (i.e., the RTP/SCS):

“mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.”

Mitigation measures should reflect the level of detail appropriate to the EIR being prepared. (See, e.g., *Koster v. County of San Joaquin* [1996] 47 Cal.App.4th 29; provides that a first-tier EIR may contain generalized mitigation criteria.) In this case, the 2024 PEIR addresses a large-scale region with a variety of projects spread over more than 20 years. As such, this 2024 PEIR identifies program-wide measures for implementation by SCAG.

In addition, the 2024 PEIR identifies project-level mitigation measures for lead agencies to consider which they “can and should” adopt, as applicable and feasible, in subsequent project-specific design, CEQA review, and decision-making processes. (See CEQA Guidelines Section 15091(a)(2)). Lead agencies may also identify other comparable measures capable of reducing impacts below the specified threshold. It is ultimately up to the lead agency to determine the appropriateness of the mitigation measure based on project-specific circumstances. As appropriate and authorized by the CEQA Guidelines and case law, the program-wide mitigation measures included in this PEIR are less detailed than those that would be part of a project EIR and the selection of detailed mitigation measures is properly deferred to future project-specific CEQA reviews. For the purposes of this PEIR, it is assumed that each lead agency for specific projects would have the ability to impose and enforce these measures (i.e., that the measures will be implemented). However, given the size and diversity of conditions and projects in the region, it is reasonably foreseeable that for some projects impacts would remain significant and unavoidable even after implementation of all feasible mitigation measures.

For projects proposing to streamline environmental review pursuant to SB 375, SB 743, or SB 226, or for projects otherwise tiering off this 2024 PEIR, the project-level mitigation measures described in this PEIR (or comparable measures) can and should be considered and implemented by lead agencies (and project sponsors) during the subsequent, project- or site-specific environmental reviews for transportation and development projects as applicable and feasible. However, SCAG cannot require lead agencies to adopt mitigation, and it is ultimately the responsibility of the lead agency to determine and adopt project-specific mitigation as appropriate and feasible for each project.

The SCAG level and project-level mitigation measures referenced in this 2024 PEIR recognize the limits of SCAG’s authority; distinguish between SCAG commitments and project-level responsibilities and authorities; optimize flexibility for project implementation; and facilitate CEQA streamlining and tiering where appropriate on a project-by-project basis determined by each lead agency.³

As part of the environmental analysis, this 2024 PEIR considers and discusses the potential of the Plan’s Regional Planning Policies and Implementation Strategies to reduce impacts to the environment prior to the application of feasible mitigation measures. While not specifically designed to avoid or reduce environmental impacts, Regional Planning Policies and Implementation Strategies may in effect address some potential environmental impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(2)). Rather than using the Regional Planning Policies and Implementation Strategies as mitigation measures, since these policies and strategies are already incorporated into and part of the Plan, the 2024 PEIR considers these policies and strategies as features of the Plan and discusses them in Chapter 2, *Project Description*, before the Plan undergoes environmental analysis in Chapter 3. See further discussion of Plan Features that May Reduce Impacts, Compliance with Laws and Regulations and Mitigation Measures in Section 3.0, *Introduction to the Analysis*.

At the regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. In most resource areas, the

³ Note that compliance with existing regulations, such as the Uniform Building Code and California Building Code, is not necessarily considered mitigation because compliance is already required. However, such regulations do reduce environmental impacts and are identified in the Regulatory Framework and discussed in impact analyses where appropriate, to provide additional information on how potential impacts are reduced. In some cases, regulatory compliance may be sufficient to reduce impacts to a level of less than significance, however, given the size and scale of the region and diversity of projects many impacts are conservatively identified as significant and mitigation measures are identified to provide options for lead agencies such that impacts may be reduced to a level of less than significant level where feasible or reduced to the maximum extent feasible where impacts have the potential to be significant.

Plan, in and of itself, would result in adverse environmental impacts and would only add to impacts of other cumulative or related projects. The Plan would result in significant impacts in the majority of issue areas. While the land use policies and strategies included in the Plan would result in a more compact development pattern which in turn would reduce impacts, the Plan could also facilitate access to other areas of the state by increasing infrastructure which could ultimately influence growth in areas outside SCAG boundaries. Mitigation measures would reduce impacts, but many impacts would remain significant and could contribute to cumulative impacts outside the SCAG region.

TABLE ES-3 Summary of Project Impacts, Mitigation Measures, and Residual Impacts

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
Aesthetics		
<p>IMPACT AES-1 Potential for the Plan to have a substantial adverse effect on a scenic vista.</p>	<p><i>SCAG Mitigation Measures</i></p> <p>SMM-GEN-1 SCAG shall continue to facilitate interagency cooperation, information sharing, and regional program development, such as through existing planning tools to support local jurisdictions including various applications offered through the SCAG Regional Data Platform (RDP), SoCal Atlas, HELPR, and other GIS resources and data services. For more information or assistance, please contact SCAG’s Local Information Services Team (LIST) at list@scag.ca.gov.</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-AES-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to address potential aesthetic impacts to scenic vistas, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Use a palette of colors, textures, building materials that are graffiti-resistant, and/or plant materials that complement the surrounding landscape and development. b) Use contour grading to better match surrounding terrain. Contour edges of major cut-and-fill to provide a more natural looking finished profile. c) Design new corridor landscaping to respect existing natural and man-made features and to complement the dominant landscaping of the surrounding areas. d) Replace and renew landscaping along corridors with road widenings, interchange projects, and related improvements. e) Retain or replace trees bordering highways, so that clear-cutting is not evident. f) Provide new corridor landscaping that respects and provides appropriate transition to existing natural and man-made features and is complementary to the dominant landscaping or native habitats of surrounding areas. g) Reduce the visibility of construction staging areas by fencing and screening these areas with low contrast materials consistent with the surrounding environment, and by revegetating graded slopes and exposed earth surfaces at the earliest opportunity; h) Use see-through safety barrier designs (e.g., railings rather than walls) 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>IMPACT AES-2 Potential to substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-AES-1.</p>	<p>Significant and unavoidable</p>
<p>IMPACT AES-3 Potential to substantially degrade the existing visual character or quality of public views (public views are those that are experienced from publicly accessible vantage points). In an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p><i>Project-Level Mitigation Measures</i> PMM-AES-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to address potential aesthetic impacts that substantially degrade visual character, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Minimize contrasts in scale and massing between the projects and surrounding natural forms and development, minimize their intrusion into important viewsheds, and use contour grading to better match surrounding terrain in accordance with county and city hillside ordinances, where applicable. b) Design landscaping along highway corridors to add significant natural elements and visual interest to soften the hard-edged, linear transportation corridors. c) Develop design guidelines for projects that make elements of proposed buildings/facilities visually compatible or minimize visibility of changes in visual quality or character through use of hardscape and softscape solutions. Specific measures to be addressed include setback buffers, landscaping, color, texture, signage, and lighting criteria. d) Design projects consistent with design guidelines of applicable general plans. e) Keep sites in a blight/nuisance-free condition. Remove blight or nuisances that compromise visual character or visual quality of project areas including graffiti abatement, trash removal, landscape management, maintenance of signage and billboards in good condition, and replace compromised native vegetation and landscape. f) Where sound walls are proposed, account for visual impacts during sound wall construction and design methods as follows: <ul style="list-style-type: none"> – Use transparent panels to preserve views where sound walls would block views from residences; – Use landscaped earth berm or a combination wall and berm to minimize the apparent sound wall height; – Construct sound walls of materials whose color and texture complements the surrounding landscape and development; 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<p>g) Design sound walls to increase visual interest, reduce apparent height, and be visually compatible with the surrounding area; and landscape the sound walls with plants that screen the sound wall, preferably with either native vegetation or landscaping that complements the dominant landscaping of surrounding areas.</p>	
<p>IMPACT AES-4 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p><i>Project-Level Mitigation Measures</i> PMM-AES-3 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to address potential aesthetic impacts that substantially degrade visual character, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Use lighting fixtures that are adequately shielded to a point below the light bulb and reflector and that prevent unnecessary glare onto adjacent properties. b) Restrict the operation of outdoor lighting for construction and operation activities to the hours of 7:00 a.m. to 10:00 p.m. c) Use high-pressure sodium and/or cut-off fixtures instead of typical mercury-vapor fixtures for outdoor lighting. d) Use unidirectional lighting to avoid light trespass onto adjacent properties. e) Design exterior lighting to confine illumination to the project site, and/or to areas which do not include light-sensitive uses. f) Provide structural and/or vegetative screening from light-sensitive uses. g) Shield and direct all new street and pedestrian lighting away from light-sensitive off-site uses. h) Use non-reflective glass or glass treated with a non-reflective coating for all exterior windows and glass used on building surfaces. i) Direct all architectural lighting onto the building surfaces and have low reflectivity to minimize glare and limit light onto adjacent properties. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
Agricultural Resources		
<p>IMPACT AG-1 Potential for the Plan to convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.</p>	<p><i>SCAG Mitigation Measures</i></p> <p>SMM-AG-1 SCAG shall provide support for local jurisdictions looking to pursue farmland conservation planning, including through information sharing and advice on grant opportunities pertinent to supporting local agency's workplans and/or actions in natural and agricultural land conservation, such as the Sustainable Agricultural Lands Conservation program.</p> <p>SMM-AG-2 SCAG shall continue to facilitate regional collaboration forums, such as the Natural & Farm Lands Conservation Working Group, for stakeholders to share best practices and develop recommendations for natural and agricultural land conservation throughout the region. The collaboration forums will help identify opportunities to leverage resources that protect and restore natural habitat corridors, especially, where corridors cross county boundaries.</p> <p>SMM-AG-3 SCAG shall develop and support a Regional Greenprint, which is a web-based tool that provides the best available scientific data and scenario visualizations to support local jurisdictions and transportation agencies make better land use and transportation infrastructure decisions and conserve natural and farm lands. SCAG shall provide the Greenprint as a publicly available tool to assist local jurisdictions, transportation agencies, and stakeholders identify priority conservation areas and work with CTCs to develop advanced mitigation programs for their future plans and projects. SCAG shall support by (1) leveraging funding to encourage advanced mitigation, (2) participating in state-level efforts that would support regional advanced mitigation planning in the SCAG region, and (3) supporting the inclusion of advanced mitigation programs at county level transportation measures.</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-AG-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to address potential adverse effects on agricultural resources, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Provide permanent protection of in-kind farmland in the form of easements, fees, or elimination of development rights/potential to mitigate for loss of farmland. b) Project relocation or corridor realignment to avoid Prime Farmland, Unique Farmland, or Farmland of Local or Statewide Importance. c) Maintain and expand agricultural land protections such as urban growth boundaries. d) Provide for mitigation fees to support a mitigation bank⁴ that invests in farmer education, agricultural infrastructure, water supply, marketing, etc. that enhance the commercial viability of retained agricultural lands. e) Minimize severance and fragmentation of agricultural land by constructing underpasses and overpasses at reasonable intervals to provide property access. f) Use berms, buffer zones, setbacks, and fencing to reduce conflicts between new development and farming uses and protect the functions of farmland. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>IMPACT AG-2 Potential for the Plan to conflict with existing zoning for agricultural use, or a Williamson Act contract.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-AG-1 through SMM-AG-3.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-AG-1.</p> <p>PMM-AG-2 Project-level mitigation measures can and should be considered by lead agencies as applicable and feasible. Measures to reduce substantial adverse effects on Williamson Act contracts to the maximum extent practicable, as determined appropriate by each lead agency, may include the following, or other comparable measures:</p> <ul style="list-style-type: none"> a) Project relocation or corridor realignment to avoid lands in Williamson Act contracts. b) Establish conservation easements consistent with the recommendations of the Department of Conservation, or 20-year Farmland Security Zone contracts (Government Code Section 51296 et seq.), 10-year Williamson Act contracts (Government Code Section 51200 et seq.), or use of other conservation tools available from the California Department of Conservation Division of Land Resource Protection. 	<p>Significant and unavoidable</p>
<p>IMPACT AG-3 Potential for the Plan to conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).</p>	<p><i>SCAG Mitigation Measures</i> See SMM-AG-1 and SMM-AG-2.</p> <p><i>Project-Level Mitigation Measures</i> PMM-AG-3 Project-level mitigation measures can and should be considered by lead agencies as applicable and feasible. Measures to reduce substantial adverse effects, through the conversion of Farmland to maximum extent practicable, as determined appropriate by each lead agency, may include the following, or other comparable measures:</p> <ul style="list-style-type: none"> a) Minimize construction related impacts to agricultural and forestry resources by locating materials and stationary equipment in such a way as to prevent conflict with forestry resources. b) Acquire conservation easements for the loss of forestland or timberland. 	<p>Significant and unavoidable (forest land); no impact (timberland)</p>

⁴ The California Department of Fish and Wildlife provides a definition for conservation or mitigation banks on their website (please see <https://www.wildlife.ca.gov/Conservation/Planning/Banking>).

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>IMPACT AG-4 Potential for the Plan to result in the loss of forest land or conversion of forest land to non-forest use.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-AG-1 and SMM-AG-2.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-AG-3.</p>	<p>Significant and unavoidable</p>
<p>IMPACT AG-5 Potential for the Plan to involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-AG-1, SMM-AG-2, SMM-GHG-1, and SMM-GHG-2.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-AG-2 and PMM-GHG-2.</p> <p>PMM-AG-4 Project-level mitigation measures can and should be considered by lead agencies as applicable and feasible. Measures to reduce substantial adverse effects, through the conversion of Farmland, to the maximum extent practicable, as determined appropriate by each lead agency, may include the following, or other comparable measures:</p> <ul style="list-style-type: none"> a) Design proposed projects to minimize, to the greatest extent feasible, the loss of the highest valued agricultural land. b) Redesign project features to minimize fragmenting or isolating Farmland. Where a project involves acquiring land or easements, ensure that the remaining non-project area is of a size sufficient to allow economically viable farming operations. The project proponents shall be responsible for acquiring easements, making lot line adjustments, and merging affected land parcels into units suitable for continued commercial agricultural management. c) Reconnect utilities or infrastructure that serve agricultural uses if these are disturbed by project construction. If a project temporarily or permanently cuts off roadway access or removes utility lines, irrigation features, or other infrastructure, the project proponents shall be responsible for restoring access as necessary to ensure that economically viable farming operations are not interrupted. <p>PMM-AG-5 Project-level mitigation measures can and should be considered by lead agencies as applicable and feasible. Measures to reduce substantial adverse effects, through the conversion of Farmland, to the maximum extent practicable, as determined appropriate by each lead agency, may include the following, or other comparable measures:</p> <ul style="list-style-type: none"> a) Manage project operations to minimize the introduction of invasive species or weeds that may affect agricultural production on adjacent agricultural land. Where a project has the potential to introduce sensitive species or habitats or have other spill-over effects on nearby agricultural lands, the project proponents shall be responsible for acquiring easements on nearby agricultural land and/or financially compensating for indirect effects on nearby agricultural land. Easements (e.g., flowage easements) shall be required for temporary or intermittent interruption in farming activities (e.g., because of seasonal flooding or groundwater seepage). Acquisition or compensation would be required for permanent or significant loss of economically viable operations. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
Air Quality		
<p>IMPACT AQ-1 Conflict with or obstruct implementation of the applicable air quality plan.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GHG-1 and SMM-GHG-2.</p> <p>SMM-AQ-1 SCAG shall continue to support and provide information on regional air quality planning and related issue areas in the region. SCAG staff shall also continue to work with the U.S. Environmental Protection Agency, California Air Resources Board, and the air districts within the SCAG region and provide updates to relevant stakeholders on regional air quality planning and related issue areas through regional collaboration forums such as SCAG’s Transportation Conformity Working Group.</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-AQ-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to violating air quality standards. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Minimize land disturbance. b) Suspend grading and earth moving when wind gusts exceed 25 miles per hour unless the soil is wet enough to prevent dust plumes. c) Cover trucks when hauling dirt. d) Stabilize the surface of dirt piles if not removed immediately. e) Limit vehicular paths on unpaved surfaces and stabilize any temporary roads. f) Minimize unnecessary vehicular and machinery activities. g) Sweep paved streets at least once per day where there is evidence of dirt that has been carried on to the roadway. h) Revegetate disturbed land, including vehicular paths created during construction to avoid future off-road vehicular activities. i) On Caltrans projects, Caltrans Standard Specifications 10-Dust Control, 17-Watering, and 18-Dust Palliative shall be incorporated into project specifications. j) Assemble a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower and greater) that could be used an aggregate of 40 or more hours for the construction project. Prepare a plan for approval by the applicable air district demonstrating achievement of the applicable percent reduction for a CARB-approved fleet. k) Ensure that all construction equipment is properly tuned and maintained. l) Minimize idling time to 5 minutes—saves fuel and reduces emissions. 	<p>Significant and unavoidable (except for Plan’s consistency with federal transportation conformity requirements)</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> m) Provide an operational water truck on-site at all times. Use watering trucks to minimize dust; watering should be sufficient to confine dust plumes to the project work areas. Sweep paved streets at least once per day where there is evidence of dirt that has been carried on to the roadway. n) Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators. o) Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites. p) Obtain CARB Portable Equipment Registration with the state or a local district permit for portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles. Arrange appropriate consultations with the CARB or the local air district to determine registration and permitting requirements prior to equipment operation at the site. q) Use Tier 4 Final equipment or better for all engines above 50 horsepower (hp). In the event that construction equipment cannot meet to Tier 4 Final or better engine certification, the Project representative or contractor must demonstrate through future study with written findings supported by substantial evidence that is approved by the project’s lead agency before using other technologies/strategies. Alternative applicable strategies may include, but would not be limited to, construction equipment with Tier 4 Interim or reduction in the number and/or horsepower rating of construction equipment and/or limiting the number of construction equipment operating at the same time. All equipment must be tuned and maintained in compliance with the manufacturer’s recommended maintenance schedule and specifications. All maintenance records for each equipment and their contractor(s) should make available for inspection and remain on-site for a period of at least two years from completion of construction, unless the individual project can demonstrate that Tier 4 Final or better engines would not be required to mitigate emissions below significance thresholds. Project sponsors should also consider including ZE/ZNE technologies where appropriate and feasible or higher tier standard diesel equipment as it becomes developed and feasible. r) Projects located within the South Coast Air Basin and the Coachella Valley should consider applying for South Coast AQMD “SOON” funds which provides funds to applicable fleets for the purchase of commercially available low-emission heavy-duty engines to achieve near-term reduction of NOx emissions from in-use off-road diesel vehicles. s) Projects located within AB 617 communities should review the applicable Community Emissions Reduction Plan (CERP) for identification of additional feasible mitigation that can be applied to individual projects. t) Where applicable, projects should provide information about air quality related programs to schools, including the Environmental Justice Community Partnerships (EJCP), Clean Air Ranger Education (CARE), and Why Air Quality Matters programs. 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> u) Projects should work with local cities and counties to install adequate signage that prohibits truck idling in certain locations (e.g., near schools and sensitive receptors). v) As applicable for airport projects, the following measures should be considered: <ul style="list-style-type: none"> – Consider operational improvements to reduce taxi time and auxiliary power unit usage, where feasible. Additionally, consider single engine taxing, if feasible as allowed per Federal Aviation Administration guidelines. – Set goals to achieve a reduction in emissions from aircraft operations over the lifetime of the proposed project. – Use ground service equipment (GSE) that can operate on battery-power. If using electric equipment is not feasible, require the use of alternative fuel, the cleanest gasoline equipment, or Tier 4 Final, at a minimum. w) As applicable for port projects, the following measures should be considered: <ul style="list-style-type: none"> – Develop specific timelines for transitioning to zero emission cargo handling equipment (CHE). – Develop interim performance standards with a minimum amount of CHE replacement each year to ensure adequate progress. – Use short side electric power for ships, which may include tugboats and other ocean-going vessels or develop incentives to gradually ramp up the usage of shore power. – Install the appropriate infrastructure to provide shore power to operate the ships. Electrical hookups should be appropriately sized. – Maximize participation in the Port of Los Angeles’ Vessel Speed Reduction Program or the Port of Long Beach’s Green Flag Initiation Program in order to reduce the speed of vessel transiting within 40 nautical miles of Point Fermin. – Encourage the participation in the Green Ship Incentives. – Offer incentives to encourage the use of on-dock rail. x) As applicable for rail projects, the following measures should be considered: <ul style="list-style-type: none"> – Provide the highest incentives for electric locomotives and then locomotives that meet Tier 5 emission standards with a floor on the incentives for locomotives that meet Tier 4 emission standards. y) Projects that will introduce sensitive receptors within 500 feet of freeways and other sources should consider installing high efficiency of enhanced filtration units, such as Minimum Efficiency Reporting Value (MERV) 13 or better. Installation of enhanced filtration units can be verified during occupancy inspection prior to the issuance of an occupancy permit. z) Develop an ongoing monitoring, inspection, and maintenance program for the MERV filters. <ul style="list-style-type: none"> – Disclose potential health impacts to prospective sensitive receptors from living in close proximity to freeways or other sources of air pollution and the reduced effectiveness of air filtration systems when windows are open or residents are outside. 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> - Identify the responsible implementing and enforcement agency to ensure that enhanced filtration units are installed on-site before a permit of occupancy is issued. - Disclose the potential increase in energy costs for running the HVAC system to prospective residents. - Provide information to residents on where MERV filters can be purchased. - Provide recommended schedule (e.g., every year or every six months) for replacing the enhanced filtration units. - Identify the responsible entity such as future residents themselves, Homeowner’s Association, or property managers for ensuring enhanced filtration units are replaced on time. - Identify, provide, and disclose ongoing cost-sharing strategies, if any, for replacing the enhanced filtration units. - Set criteria for assessing progress in installing and replacing the enhanced filtration units; and - Develop a process for evaluating the effectiveness of the enhanced filtration units. <p>aa) Consult the SCAG Environmental Justice Toolbox available on SCAG’s Environmental Justice webpage for potential measures to address impacts to low-income and/or communities of color.</p> <p>bb) The following criteria related to diesel emissions shall be implemented on by individual project sponsors as appropriate and feasible:</p> <ul style="list-style-type: none"> - Diesel nonroad vehicles on site for more than 10 total days shall have either (1) engines that meet EPA on road emissions standards or (2) emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%. - Diesel generators on site for more than 10 total days shall be equipped with emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%. - Nonroad diesel engines on site shall be Tier 2 or higher. - Diesel nonroad construction equipment on site for more than 10 total days shall have either (1) engines meeting EPA Tier 4 nonroad emissions standards or (2) emission control technology verified by EPA or CARB for use with nonroad engines to reduce PM emissions by a minimum of 85% for engines for 50 hp and greater and by a minimum of 20% for engines less than 50 hp. - The construction contractor shall maintain a list of all diesel vehicles, construction equipment, and generators to be used on site. The list shall include the following: <ul style="list-style-type: none"> i. Contractor and subcontractor name and address, plus contact person responsible for the vehicles or equipment. ii. Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel usage and hours of operation. 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> iii. For the emission control technology installed: technology type, serial number, make, model, manufacturer, EPA/CARB verification number/level, and installation date and hour-meter reading on installation date. <ul style="list-style-type: none"> – Establish generator sites and truck-staging zones for vehicles waiting to load or unload material on site. Such zones shall be located where diesel emissions have the least impact on abutters, the general public, and especially sensitive receptors such as hospitals, schools, daycare facilities, elderly housing, and convalescent facilities. – Maintain a monthly report that, for each on road diesel vehicle, nonroad construction equipment, or generator onsite, includes: <ul style="list-style-type: none"> i. Hour-meter readings on arrival on-site, the first and last day of every month, and on off-site date. ii. Any problems with the equipment or emission controls. iii. Certified copies of fuel deliveries for the time period that identify: <ul style="list-style-type: none"> 1. Source of supply 2. Quantity of fuel 3. Quantity of fuel, including sulfur content (percent by weight) cc) Promote energy efficiency and exceed Title-24 Building Envelope Energy Efficiency Standards (California Building Standards Code): <ul style="list-style-type: none"> – Install programmable thermostat timers – Obtain Third-party HVAC commissioning and verification of energy savings (to be grouped with exceedance of Title 24). – Install energy efficient appliances (Typical reductions for energy-efficient appliances can be found in the Energy Star and Other Climate Protection Partnerships Annual Reports.) – Install higher efficacy public street and area lighting – Limit outdoor lighting requirements – Replace traffic lights with LED traffic lights – Establish onsite renewable or carbon neutral energy systems – generic, solar power and wind power – Utilize a combined heat and power system dd) Promote transportation efficiency. The following measures can be used to increase transportation efficiency: <ul style="list-style-type: none"> – Locate project near bike path/bike lane – Provide pedestrian network improvements, such as interconnected street network, narrower roadways and shorter block lengths, sidewalks, accessibility to transit and transit shelters, traffic calming measures, parks and public spaces, minimize pedestrian barriers. 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> - Provide traffic calming measures, such as: <ul style="list-style-type: none"> i. Marked crosswalks ii. Count-down signal timers iii. Curb extensions iv. Speed tables v. Raised crosswalks vi. Raised intersections vii. Median islands viii. Tight corner radii ix. Roundabouts or mini-circles x. On-street parking xi. Chicanes/chokers - Create urban non-motorized zones - Provide bike parking in non-residential and multi-unit residential projects - Dedicate land for bike trails - Limit parking supply through: <ul style="list-style-type: none"> i. Elimination (or reduction) of minimum parking requirements ii. Creation of maximum parking requirements iii. Provision of shared parking - Require residential area parking permit. - Provide ride-sharing programs <ul style="list-style-type: none"> i. Designate a certain percentage of parking spacing for ride sharing vehicles ii. Designating adequate passenger loading and unloading and waiting areas for ride-sharing vehicles iii. Providing a web site or messaging board for coordinating rides iv. Permanent transportation management association membership and finding requirement. ee) Lengthen the construction period during smog season (May through October), to minimize the number of vehicles and equipment operating at the same time. ff) Install signage containing the complaint number of the local air district where construction activities are located at the construction sites. 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>IMPACT AQ-2 Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.</p>	<p><i>SCAG Mitigation Measures</i> See SMM GHG-1, SMM GHG-2, and SMM-AQ-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-AQ-1.</p>	Significant and unavoidable
<p>IMPACT AQ-3 Expose sensitive receptors to substantial pollutant concentrations.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-LU-1 through SMM-LU-3, SMM-POP-1, SMM-POP-2.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-AQ-1.</p> <p>PMM-AQ-2 Projects subject to California Environmental Quality Act (CEQA) review (i.e., non-exempt projects) and located within the jurisdiction of the South Coast Air Quality Management District (SCAQMD) and within one-quarter mile (1,320 feet) of a sensitive land use shall prepare an air quality analysis that evaluates potential localized project air quality impacts in conformance with SCAQMD methodology for assessing localized significance thresholds (LST) air quality impacts. If air pollutants are determined to have the potential to exceed the SCAQMD-adopted thresholds of significance, the project shall incorporate feasible mitigation measures to reduce air pollutant emissions.</p>	Significant and unavoidable
<p>IMPACT AQ-4 Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-AQ-1, SMM-GHG-1, AND SMM-GHG-2.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-AQ-1 and PMM-AQ-2.</p>	Significant and unavoidable
Biological Resources		
<p>IMPACT BIO-1 Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations,</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p>SMM-BIO-1 SCAG shall support research, programs, and policies that identify, protect, and restore natural habitat corridors and continue support for preserving wildlife corridors and wildlife crossings through information sharing, such as showcasing best practices and regional collaboration forums like SCAG’s Natural and Farm Lands Conservation Working Group.</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-BIO-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects</p>	Significant and unavoidable

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>or by the California Department of Fish and Game or US Fish and Wildlife Service.</p>	<p>related to threatened and endangered species, and species that meet the definition of “rare” as defined in CEQA Guidelines Section 15380(b)(2). Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Avoid occupied habitat and potentially suitable habitat for threatened, endangered, or rare species, as well as designated critical habitat in project design, wherever practicable and feasible. Where projects are determined to be within suitable habitat and may impact listed or sensitive species that have specific field survey protocols or guidelines outlined by the USFWS, CDFW, or other local agency, prior to construction, conduct focused species surveys that follow applicable protocols and guidelines and are conducted by qualified and/or certified personnel. If sensitive plants or wildlife are present, identify and implement species-specific measures to avoid, minimize, and mitigate for potential impacts in consultation with USFWS or CDFW. b) Where avoidance is determined to be infeasible for species protected under FESA, CESA, or local/regional species habitat conservation plan, provide conservation measures to result in no net loss of sensitive habitats and open space and fulfill the requirements of the applicable authorization for incidental take pursuant to Section 7 or 10(a) of the federal ESA, Section 2081 of the California ESA to support issuance of an incidental take permit, and/or as identified in local or regional plans. Conservation strategies to protect the survival and recovery of federally and state-listed endangered and local special status species may include: <ul style="list-style-type: none"> i. Impact minimization strategies ii. Contribution of in-lieu fees for in-kind conservation and mitigation efforts iii. Use of in-kind mitigation bank credits iv. Funding of research and recovery efforts v. Habitat restoration vi. Establishment of conservation easements vii. Permanent dedication of in-kind habitat c) Design projects to avoid desert native plants protected under the California Desert Native Plants Act, salvage and relocate desert native plants, and/or pay in lieu fees to support off-site long-term conservation strategies. d) Temporary access roads and staging areas will not be located within areas containing sensitive plants, wildlife species or non-native habitat wherever feasible, so as to avoid or minimize impacts to these species e) Develop and implement a Worker Environmental Awareness Program (environmental education) to inform project workers of their responsibilities to avoid and minimize impacts on sensitive biological resources. f) Retain a qualified botanist to document the presence or absence of special status plants before project implementation. 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> g) Appoint a qualified biologist to monitor construction activities that may occur in or adjacent to occupied sensitive species' habitat to facilitate avoidance of resources not permitted for impact. h) Appoint a qualified biologist to monitor implementation of mitigation measures. i) Schedule construction activities to avoid sensitive times for biological resources (e.g., steelhead spawning periods during the winter and spring, nesting bird season) and to avoid the rainy season when erosion and sediment transport is increased. j) Develop an invasive species control plan associated with project construction k) If construction occurs during breeding seasons in or adjacent to suitable habitat, include appropriate sound attenuation measures required for sensitive avian species and other best management practices appropriate for potential local sensitive wildlife l) Conduct pre-construction surveys to delineate occupied sensitive species' habitat to facilitate avoidance. m) Project design should address the protection of habitat on both sides of a freeway to improve effectiveness of the crossings and may use alternatives to hydrocarbon-based asphalt paving to mitigate for potential hydrocarbon and heavy metal contamination. 	
<p>IMPACT BIO-2 Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1 and SMM-BIO-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-BIO-1.</p> <p>PMM-BIO-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to riparian habitats and other sensitive natural communities. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Consult with the USFWS and NMFS where such state-designated sensitive or riparian habitats provide potential or occupied habitat for federally listed rare, threatened, and endangered species afforded protection pursuant to the federal ESA. b) Consult with the USFS where such state-designated sensitive or riparian habitats provide potential or occupied habitat for federally listed rare, threatened, and endangered species afforded protection pursuant to the federal ESA and any additional species afforded protection by an adopted Forest Land Management Plan or Resource Management Plan for the four national forests in the six-county area: Angeles, Cleveland, Los Padres, and San Bernardino. c) Consult with the CDFW where such state-designated sensitive or riparian habitats provide potential or occupied habitat for state-listed rare, threatened, and endangered species afforded protection pursuant to the California ESA, or Fully Protected Species afforded protection pursuant to the State Fish and Game Code. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> d) Consult with the CDFW pursuant to the provisions of Section 1600 of the State Fish and Game Code as they relate to Lakes and Streambeds. e) Consult with the USFWS, USFS, CDFW, and counties and cities in the SCAG region, where state-designated sensitive or riparian habitats are occupied by birds afforded protection pursuant to the MBTA during the breeding season. f) Consult with the CDFW for state-designated sensitive or riparian habitats where furbearing mammals, afforded protection pursuant to the provisions of the State Fish and Game Code for fur-beaming mammals, are actively using the areas in conjunction with breeding activities. g) Require project design to avoid sensitive natural communities and riparian habitats, wherever practicable and feasible. Where practicable and feasible, require upland buffers that sufficiently minimize impacts to riparian corridors. h) Where avoidance is determined to be infeasible, develop sufficient conservation measures through coordination with local agencies and the regulatory agency (i.e., USFWS or CDFW) to protect sensitive natural communities and riparian habitats and develop appropriate compensatory mitigation, where required. i) Appoint a qualified biologist to monitor construction activities that may occur in or adjacent to sensitive communities. j) Appoint a qualified biologist to monitor implementation of mitigation measures. k) Schedule construction activities to avoid sensitive times for biological resources and to avoid the rainy season when erosion and sediment transport is increased. l) When construction activities require stream crossings, schedule work during dry conditions and use rubber-wheeled vehicles, when feasible. Have a qualified wetland scientist determine if potential project impacts require a Notification of Lake or Streambed Alteration to CDFW during the planning phase of projects. m) Consult with local agencies, jurisdictions, and landowners where such state-designated sensitive or riparian habitats are afforded protection pursuant to an adopted regional conservation plan. n) Install fencing and/or mark sensitive habitat to be avoided during construction activities. o) Salvage and stockpile topsoil (the surface material from 6 to 12 inches deep) and perennial native plants, when recommended by the qualified ecologist/biologist, for use in restoring native vegetation to areas of temporary disturbance within the project area. Salvage of soils containing invasive species, seeds and/or rhizomes will be avoided as identified by the qualified wetland biologist. p) Revegetate with appropriate native vegetation following the completion of construction activities. as identified by the qualified ecologist/biologist. q) Complete habitat enhancement (e.g., through removal of non-native invasive wetland species and replacement with more ecologically valuable native species). 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<p>r) Use best management practices (BMPs) at construction sites to minimize erosion and sediment transport from the area. BMPs include encouraging growth of native vegetation in disturbed areas, using straw bales or other silt-catching devices, and using settling basins to minimize soil transport.</p>	
<p>IMPACT BIO-3 Have a substantial adverse effect on State or Federally Protected Wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1 and SMM-BIO-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-BIO-1 and PMM-BIO-2.</p> <p>PMM-BIO-3 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to wetlands. Such measures may include the following or other comparable measures identified by the lead agency.</p> <p>a) Conduct an aquatic resources delineation by a qualified biologist to identify and map the extent of state and federally protected aquatic resources. Avoid state and federally protected aquatic resources in project design, consistent with the provisions of Sections 404 and 401 of the CWA, wherever practicable and feasible.</p> <p>b) Where the lead agency has identified that a project, or other regionally significant project, has the potential to impact other wetlands or waters, such as those considered Waters Of the State of California under the State Wetland Definition and Procedures for Dischargers of Dredged or Fill Material to Waters of the State, not protected under Section 404 or 401 of the CWA, seek comparable coverage for these wetlands and waters in consultation with the SWRCB, applicable RWQCB, and CDFW.</p> <p>c) Where avoidance of wetlands is determined to be infeasible, develop sufficient conservation measures to fulfill the requirements of the applicable authorization for impacts to federal and state protected aquatic resource to support issuance of a permit under Section 404 of the CWA as administered by USACE or SAA by CDFW. The use of an authorized Nationwide Permit or issuance of an individual permit requires the project applicant to demonstrate compliance with USACE's Final Compensatory Mitigation Rule or the CDFW SAA conditions. The USACE reviews projects to ensure environmental impacts to aquatic resources are avoided or minimized as much as feasible. Consistent with the administration's performance standard of "no net loss of wetlands" a USACE permit may require a project proponent to restore, establish, enhance, or preserve other aquatic resources in order to replace those affected by the proposed project. This compensatory mitigation process seeks to replace the loss of existing aquatic resource functions and area. Project proponents required to complete mitigation are encouraged to use a watershed approach and watershed planning information. The new rule establishes performance standards, sets timeframes for decision making, and to the maximum extent feasible, establishes equivalent requirements and standards for the three sources of compensatory mitigation:</p> <ul style="list-style-type: none"> - Permittee-responsible mitigation - Contribution of in-kind in-lieu fees 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> - Use of in-kind mitigation bank credits d) Where avoidance is determined to be infeasible and proposed projects' impacts exceed an existing Nationwide Permit (NWP) and/or California SWRCB-certified NWP, the lead agency should provide USACE and SWRCB (where applicable) an alternative analysis consistent with the Least Environmentally Damaging Practicable Alternatives in this order of priorities: <ul style="list-style-type: none"> - Avoidance - Impact Minimization - On-site alternatives - Off-site alternatives e) Require review of construction drawings by a certified wetland delineator as part of each project-specific environmental analysis to determine whether aquatic resources will be affected and, if necessary, perform formal wetland delineation. 	
<p>IMPACT BIO-4 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1, SMM-AG-1 through SMM-AG-3, SMM-GHG-1, SMM-LU-3, SMM-WF-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-BIO-1 through PMM-BIO-3.</p> <p>PMM-BIO-4 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to wildlife movement. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Consult with the USFS where impacts to migratory wildlife corridors may occur in an area afforded protection by an adopted Forest Land Management Plan or Resource Management Plan for the four national forests in the six-County area: Angeles, Cleveland, Los Padres, and San Bernardino. b) Consult with counties, cities, and other local organizations when impacts may occur to open space areas that have been designated as important for wildlife movement related to local ordinances or conservation plans. c) Prohibit construction activities within 500 feet of occupied breeding areas for wildlife afforded protection pursuant to Title 14 § 460 of the California Code of Regulations protecting fur-bearing mammals, during the breeding season. d) Conduct a survey to identify active raptor and other migratory nongame bird nests by a qualified biologist at least two weeks before the start of construction at project sites from February 1 through August 31. e) Prohibit construction activities with 300 feet of occupied nest of birds afforded protection pursuant to the Migratory Bird Treaty Act, during the breeding season. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> f) Ensure that suitable nesting sites for migratory nongame native bird species protected under the Migratory Bird Treaty Act and/or trees with unoccupied raptor nests should only be removed prior to February 1, or following the nesting season. g) When feasible and practicable, minimize impacts to wildlife movement and habitat connectivity and preserve existing and functional wildlife corridors in project design. h) Conduct site-specific analyses of opportunities to preserve or improve habitat linkages with areas on- and off-site. i) Long linear projects with the possibility of impacting wildlife movement should analyze habitat linkages/wildlife movement corridors on a broad scale to avoid critical narrow choke points that could reduce function of recognized movement corridor. j) Review construction drawings and habitat connectivity mapping by a qualified biologist to determine the risk of habitat fragmentation. k) Pursue mitigation banking to preserve habitat linkages and corridors (opportunities to purchase, maintain, and/or restore offsite habitat). l) When practicable and feasible design projects to promote wildlife corridor redundancy by including multiple connections between habitat patches. m) Evaluate the potential for installation of overpasses, underpasses, and culverts to create wildlife crossings in cases where a roadway or other transportation project may interrupt the flow of species through their habitat. Provide wildlife crossings in accordance with proven standards, such as FHWA's Critter Crossings or Ventura County Mitigation Guidelines and in consultation with wildlife corridor authorities. n) Install directional wildlife fencing where appropriate to minimize the probability of wildlife injury due to direct interaction between wildlife and roads or construction. o) Where avoidance is determined to be infeasible, design sufficient conservation measures through coordination with local agencies and the regulatory agency (i.e., USFWS or CDFW) and in accordance with the respective counties and cities general plans to establish plans to mitigate for the temporal or permanent loss of fish and wildlife movement corridors and/or wildlife nursery sites. The consideration of conservation measures may include the following measures, in addition to the measures outlined in PMM-BIO-1(b), where applicable: <ul style="list-style-type: none"> – Wildlife movement buffer zones – Corridor realignment – Appropriately spaced breaks in center barriers – Stream rerouting – Culverts – Creation of artificial movement corridors such as freeway under- or overpasses 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> - Acquire contiguous adjacent land parcels to be protected in perpetuity from encroachment and development - Other comparable measures p) Where the lead agency has identified that an RTP/SCS project, or other regionally significant project, has the potential to impact other open space or nursery site areas, seek comparable coverage for these areas in consultation with the USFWS, CDFW, NMFS, or other local jurisdictions. q) Incorporate applicable and appropriate guidance (e.g., FHWA-HEP-16-059), as well as best management practices, to benefit pollinators with a focus on native plants. r) Implement berms and sound/sight barriers at all wildlife crossings to encourage wildlife to utilize crossings. Sound and lighting should also be minimized in developed areas, particularly those that are adjacent to or go through natural habitats. s) Reduce lighting impacts on sensitive species through implementation of mitigation measures such as, but not limited to: <ul style="list-style-type: none"> - Use high pressure sodium and/or cut-off fixtures instead of typical mercury-vapor fixtures for outdoor lighting. - Design exterior lighting to confine illumination to the project site. - Provide structural and/or vegetative screening from light-sensitive uses. - Use non-reflective glass or glass treated with a non-reflective coating for all exterior windows and glass used on building surfaces. - Direct architectural lighting onto the building surfaces and have low reflectivity to minimize glare and limit light onto adjacent properties. t) Reduce noise impacts to sensitive species through implementation of mitigation measures such as, but not limited to: <ul style="list-style-type: none"> - Install temporary noise barriers during construction. - Include permanent noise barriers and sound-attenuating features as part of the project design. Barriers could be in the form of outdoor barriers, sound walls, buildings, or earth berms to attenuate noise at adjacent sensitive uses. - Provide structural and/or vegetative screening from light-sensitive uses. - Ensure that construction equipment are properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds silencers, wraps). All intake and exhaust ports on power equipment shall be muffled or shielded. - Use hydraulically or electrically powered tools (e.g., jack hammers, pavement breakers, and rock drills) for project construction to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust should be used; this muffler can lower noise levels from the 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<p>exhaust by up to about 10 dBA. External jackets on the tools themselves should be used, if such jackets are commercially available, and this could achieve a further reduction of 5 dBA. Quieter procedures should be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.</p> <ul style="list-style-type: none"> - Using rubberized asphalt or “quiet pavement” to reduce road noise for new roadway segments, roadways in which widening or other modifications require re-pavement, or normal reconstruction of roadways where re-pavement is planned. - Use equipment and trucks with the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds, wherever feasible) for project construction. - Use techniques such as grade separation, buffer zones, landscaped berms, dense plantings, sound walls, reduced-noise paving materials, and traffic calming measures. <p>u) Include large buffers between sensitive uses and freeways.</p> <p>v) Create corridor redundancy to help retain functional connectivity and resilience.</p> <p>w) To the extent practicable, avoid construction during dawn and dusk, when wildlife activity is highest.</p> <p>y) If protected terrestrial wildlife enter work areas during construction, temporarily halt work to allow wildlife to move through the work area unharmed. A qualified biologist may relocate non-listed wildlife species out of the work area.</p>	
<p>IMPACT BIO-5 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1, SMM-BIO-1, and SMM-LU-3.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-BIO-1 through PMM-BIO-4.</p> <p>PMM-BIO-5 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce conflicts with local policies and ordinances protecting biological resources. Such measures may include the following or other comparable measures identified by the lead agency.</p> <ul style="list-style-type: none"> a) Consult with the appropriate local agency responsible for the administration of the policy or ordinance protecting biological resources. b) Prioritize retention of trees on-site consistent with local regulations. Provide adequate protection during the construction period for any trees that are to remain standing, as recommended by an International Society of Arboriculture (ISA) certified arborist. c) If specific project area trees are designated as “Protected Trees,” “Landmark Trees,” or “Heritage Trees,” obtain approval for encroachment or removals through the appropriate entity, and develop appropriate mitigation measures at that time, to ensure that the trees are replaced. Mitigation trees shall be locally collected native species, as directed by a qualified biologist. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<p>d) Appoint an ISA certified arborist to monitor construction activities that may occur in areas with trees are designated as "Protected Trees," "Landmark Trees," or "Heritage Trees," to facilitate avoidance of resources not permitted for impact. Before the start of any clearing, excavation, construction or other work on the site, securely fence off every protected tree deemed to be potentially endangered by said site work. Keep such fences in place for duration of all such work. Clearly mark all trees to be removed.</p> <p>e) Establish a scheme for the removal and disposal of logs, brush, earth, and other debris that will avoid injury to any protected tree. Where proposed development or other site work could encroach upon the protected perimeter of any protected tree, incorporate special measures to allow the roots to breathe and obtain water and nutrients. Minimize any excavation, cutting, filing, or compaction of the existing ground surface within the protected perimeter. Require that no change in existing ground level occur from the base of any protected tree at any time. Require that no burning or use of equipment with an open flame occur near or within the protected perimeter of any protected tree.</p> <p>f) No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees occur from the base of any protected trees, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials be operated or stored within a distance from the base of any protected trees. Wires, ropes, or other devices not to be attached to any protected tree, except as needed for support of the tree. Require that no sign, other than a tag showing the botanical classification, be attached to any protected tree.</p> <p>g) Thoroughly spray the leaves of protected trees with water periodically during construction to prevent buildup of dust and other pollution that would inhibit leaf transpiration, as directed by the certified arborist.</p> <p>h) If any damage to a protected tree should occur during or as a result of work on the site, the appropriate local agency will be immediately notified of such damage. If such tree cannot be preserved in a healthy state, as determined by the certified arborist, replace any tree removed with another tree or trees on the same site deemed adequate by the local agency to compensate for the loss of the tree that is removed. Remove all debris created as a result of any tree removal work from the property within two weeks of debris creation, and such debris shall be properly disposed of in accordance with all applicable laws, ordinances, and regulations. Design projects to avoid conflicts with local policies and ordinances protecting biological resources.</p> <p>i) Where avoidance is determined to be infeasible, develop sufficient conservation measures to fulfill the requirements of the applicable policy or ordinance, such as to support issuance of a tree removal permit. The consideration of conservation measures may include:</p> <ul style="list-style-type: none"> - Avoidance strategies - Contribution of in-lieu fees - Planting of replacement trees - Re-landscaping areas with native vegetation post-construction - Other comparable measures developed in consultation with local agency and certified arborist. 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>IMPACT BIO-6 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1, SMM-BIO-1, and SMM-LU-3.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-BIO-1 through PMM-BIO-5.</p> <p>PMM-BIO-6 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects on HCPs and NCCPs. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Consult with the appropriate federal, state, and/or local agency responsible for the administration of HCPs or NCCPs. b) Wherever practicable and feasible, the project shall be designed to avoid lands preserved under the conditions of an HCP or NCCP. c) Where avoidance is determined to be infeasible, develop sufficient conservation measures to fulfill the requirements of the HCP and/or NCCP, which would include but not be limited to applicable authorization for incidental take pursuant to Section 7 or 10(a) of the federal Endangered Species Act and/or Sections 2081(b) or 2080.1 of the California Fish and Game Code, to support issuance of an incidental take permit or any other permissions required for development within the HCP/NCCP boundaries. The consideration of additional conservation measures would include the measures outlined in SMM-BIO-2, where applicable. 	<p>Significant and unavoidable</p>
Cultural Resources		
<p>IMPACT CUL-1 Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p>SMM-CUL-1 SCAG shall encourage local jurisdictions to identify opportunities for early consultation with resource agencies such as the National Park Service, Office of Historic Preservation, and Native American Heritage Commission, as well as Native American tribes, for identification and avoidance of archaeological sites, historical resources, cemeteries, and tribal cultural resources, wherever practicable and feasible and reduce or mitigate for conflicts in compatible land use to the maximum extent practicable.</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-CUL-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to historical resources. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Pursuant to CEQA Guidelines Section 15064.5, conduct a record search during the project planning phase at the appropriate Information Center to determine whether the project area has been previously surveyed and whether historical resources were identified. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> b) During the project planning phase, retain a qualified architectural historian, defined as an individual who meets the Secretary of the Interior’s Professional Qualification Standards (PQS) in Architectural History, to conduct historic architectural surveys if a built environment resource greater than 45 years in age may be affected by the project or if recommended by the Information Center. c) Comply with Section 106 of the National Historic Preservation Act (NHPA) including, but not limited to, projects for which federal funding or approval is required for the individual project. This law requires federal agencies to evaluate the impact of their actions on resources included in or eligible for listing in the National Register. Federal agencies must coordinate with the State Historic Preservation Officer in evaluating impacts and developing mitigation. These mitigation measures may include, but are not limited to the following: <ul style="list-style-type: none"> – Employ design measures to avoid historical resources and undertake adaptive reuse where appropriate and feasible. If resources are to be preserved, as feasible, carry out the maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction in a manner consistent with the Secretary of the Interior’s Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. If resources would be impacted, impacts should be minimized to the extent feasible. – Where feasible, noise buffers/walls and/or visual buffers/landscaping should be constructed to preserve the contextual setting of significant built resources. d) If a project requires the relocation, rehabilitation, or alteration of an eligible historical resource, the Secretary of the Interior’s Standards for the Treatment of Historic Properties should be used to the maximum extent feasible to ensure the historical significance of the resource is not impaired. The application of the standards should be overseen by an architectural historian or historic architect meeting the Secretary of the Interior’s PQS. Prior to any construction activities that may affect the historical resource, a report, meeting industry standards, should identify and specify the treatment of character-defining features and construction activities and be provided to the lead agency for review and approval. e) If a project would result in the demolition or significant alteration of a historical resource eligible for or listed in the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), or local register, recordation should take the form of Historic American Buildings Survey (HABS), Historic American Engineering Record (HAER), or Historic American Landscape Survey (HALS) documentation, and should be performed by an architectural historian or historian who meets the Secretary of the Interior’s PQS. Recordation should meet the Secretary of the Interior’s Standards and Guidelines for Architectural and Engineering, which defines the products acceptable for inclusion in the HABS/HAER/HALS collection at the Library of Congress. The specific scope and details of documentation should be developed at the project level in coordination with the lead agency. f) During the project planning phase, obtain a qualified archaeologist, defined as one who meets the Secretary of the Interior’s PQS for archaeology, to conduct a record search at the appropriate Information Center of the California Historical Resources Information System (CHRIS) to determine whether the project area has been previously surveyed and whether resources were identified. 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> g) Contact the NAHC to request a Sacred Lands File search and a list of relevant Native American contacts who may have additional information. h) During the project planning phase, obtain a qualified archaeologist or architectural historian (depending on applicability) to conduct archaeological and/or historic architectural surveys as recommended by the qualified professional, the lead agency, or the Information Center. In the event the records indicate that no previous survey has been conducted, the qualified professional or Information Center will make a recommendation on whether a survey is warranted based on the sensitivity of the project area for archaeological resources. i) If potentially significant archaeological resources are identified through survey, and impacts to these resources cannot be avoided, a Phase II Testing and Evaluation investigation should be performed by a qualified archaeologist prior to any construction-related ground-disturbing activities to determine significance. If resources determined significant or unique through Phase II testing, and avoidance is not feasible, appropriate resource-specific mitigation measures should be established by the lead agency and undertaken by qualified personnel. These might include a Phase III data recovery program implemented by a qualified archaeologist and performed in accordance with the OHP’s Archaeological Resource Management Reports (ARMR): Recommended Contents and Format and Guidelines for Archaeological Research Designs. Additional options can include 1) interpretative signage, or 2) educational outreach that helps inform the public of the past activities that occurred in this area. Archaeological materials collected from a significant resource should be curated with a recognized scientific or educational repository. j) If a record search or archaeological assessment indicates that the project is located in an area sensitive for archaeological resources, as determined by the lead agency in consultation with a qualified archaeologist, retain an archaeological monitor to observe ground disturbing operations, including but not limited to grading, excavation, trenching, or removal of existing features of the subject property. The archaeological monitor should be supervised by an archaeologist meeting the Secretary of the Interior’s PQS k) Conduct construction activities and excavation to avoid cultural resources (if identified). If avoidance is not feasible, further work may be needed to determine the importance of a resource. Retain a qualified archaeologist, and/or as appropriate, a qualified architectural historian who should make recommendations regarding the work necessary to assess significance. If the cultural resource is determined to be significant under state or federal guidelines, impacts to the cultural resource will need to be mitigated. l) Stop construction activities and excavation in the area where cultural resources are found until a qualified archaeologist can determine whether these resources are significant. If the archaeologist determines that the discovery is significant, it should be curated with a recognized scientific or educational repository. 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>IMPACT CUL-2 Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN and SMM-CUL-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-CUL-1.</p>	<p>Significant and unavoidable</p>
<p>IMPACT CUL-3 Disturb human remains, including those interred outside of dedicated cemeteries.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN and SMM-CUL-1.</p> <p><i>Project-Level Mitigation Measures</i> PMM-CUL-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to human remains. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) In the event of discovery or recognition of any human remains during construction or excavation activities associated with the project, in any location other than a dedicated cemetery, cease further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner of the county in which the remains are discovered has been informed and has determined that no investigation of the cause of death is required. b) If any discovered remains are of Native American origin: <ul style="list-style-type: none"> – Contact the County Coroner to contact the NAHC to designate a Native American Most Likely Descendant (MLD). The MLD should make a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods. This may include obtaining a qualified archaeologist or team of archaeologists to properly excavate the human remains. – If the NAHC is unable to identify a MLD, or the MLD fails to make a recommendation within 48 hours after being notified by the commission, or the landowner or his representative rejects the recommendation of the MLD and the mediation by the NAHC fails to provide measures acceptable to the landowner, obtain a culturally affiliated Native American monitor, and an archaeologist, if recommended by the Native American monitor, and rebury the Native American human remains and any associated grave goods, with appropriate dignity, on the property and in a location that is not subject to further subsurface disturbance. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
Energy		
<p>IMPACT ENR-1 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-AQ-1, SMM-GHG-1, and SMM-GHG-2.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-AQ-1, PMM-GHG-1, PMM-TRA-1, and PMM-USWS-1.</p>	<p>Significant and unavoidable</p>
<p>IMPACT ENR-2 Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.</p>	<p><i>SCAG Mitigation Measures</i> See SMM AQ-1, SMM GHG-1, SMM GHG-2, and SMM LU-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-AQ-1, PMM-GHG-1, PMM-TRA-1, and PMM-USWS-1.</p>	<p>Significant and unavoidable</p>
Geology and Soils		
<p>IMPACT GEO-1 Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: (i) rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42; (ii) strong seismic ground shaking; (iii) seismic-related ground failure,</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p><i>Project-Level Mitigation Measures</i> PMM-GEO-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to minimize the potential for adverse effects associated with surface fault rupture, seismic ground shaking, seismic-related ground failure, liquefaction, and landslides for projects located on sites with unusual geologic conditions, the following measures shall be considered:</p> <ul style="list-style-type: none"> • Use interim precautionary steps during construction to maintain ground surface and slope stability; • Incorporate design and structural features that exceed the requirements of the applicable building code(s); and • Utilize innovative design techniques for buildings and other structural elements located on sites with unique geologic conditions. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
including liquefaction; (iv) landslides.		
IMPACT GEO-2 Result in substantial soil erosion or the loss of topsoil	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p><i>Project-Level Mitigation Measures</i> PMM-GEO-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to geological impacts. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) While compliance with the various municipal regional stormwater permits (MS4s) is required by law, not all areas are necessarily covered under one. For those areas that are not covered under a municipal stormwater permit (MS4), consistent with the requirements of the SWRCB and local regulatory agencies with oversight of development associated with the Plan, ensure that project designs provide adequate slope drainage and appropriate landscaping to minimize the occurrence of slope instability and erosion. Design features should include measures to reduce erosion caused by storm water. Road cuts should be designed to maximize the potential for revegetation. 	Significant and unavoidable
IMPACT GEO-3 Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-GEO-1.</p>	Significant and unavoidable
IMPACT GEO-4 Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-GEO-1.</p>	Significant and unavoidable

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>IMPACT GEO-5 Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p>	<p>Significant and unavoidable</p>
<p>IMPACT GEO-6 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.</p>	<p><i>Project-Level Mitigation Measures</i> PMM-GEO-3 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to paleontological resources. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) For sites where the presence of paleontological resources is considered possible, as appropriate obtain review by a qualified paleontologist (meets the SVP standards for a Principal Investigator or Project Paleontologist or the Bureau of Land Management (BLM) standards for a Principal Investigator), to determine if the project has the potential to require ground disturbance of parent material with potential to contain unique paleontological or resources, or to require the substantial alteration of a unique geologic feature. The assessment should include museum records searches, a review of geologic mapping and the scientific literature, geotechnical studies (if available), and potentially a pedestrian survey, if units with paleontological potential are present at the surface. b) Avoid exposure or displacement of parent material with potential to yield unique paleontological resources. c) Where avoidance of parent material with the potential to yield unique paleontological resources is not feasible: <ul style="list-style-type: none"> 1) All on-site construction personnel receive Worker Education and Awareness Program (WEAP) training prior to the commencement of excavation work to understand the regulatory framework that provides for protection of paleontological resources and become familiar with diagnostic characteristics of the materials with the potential to be encountered. 2) A qualified paleontologist prepares a paleontological resources management plan (PRMP) to guide the salvage, documentation and repository of unique paleontological resources encountered during construction. The PRMP should adhere to and incorporate the performance standards and practices from the 2010 SVP Standard procedures for the assessment and mitigation of adverse impacts to paleontological resources. If unique paleontological resources are encountered during construction, use a qualified paleontologist to oversee the implementation of the PRMP. 3) Monitor ground disturbing activities in parent material, with a moderate to high potential to yield unique paleontological resources using a qualified paleontological monitor meeting the standards 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<p>of the SVP or the BLM to determine if unique paleontological resources are encountered during such activities, consistent with the specified or comparable protocols.</p> <p>4) Identify where ground disturbance is proposed in a geologic unit having the potential for containing fossils and specify the need for a paleontological monitor to be present during ground disturbance in these areas.</p> <p>d) Avoid routes and project designs that would permanently alter unique geological features.</p> <p>e) Salvage and document adversely affected resources sufficient to support ongoing scientific research and education.</p> <p>f) Significant recovered fossils should be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological curation facility.</p> <p>g) Following the conclusion of the paleontological monitoring, the qualified paleontologist should prepare a report stating that the paleontological monitoring requirement has been fulfilled and summarize the results of any paleontological finds. The report should be submitted to the lead CEQA and the repository curating the collected artifacts and should document the methods and results of all work completed under the PRMP, including treatment of paleontological materials, results of specimen processing, analysis, and research, and final curation arrangements.</p>	
Greenhouse Gas Emissions		
<p>IMPACT GHG-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.</p> <p>IMPACT GHG-2 Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.</p>	<p><i>SCAG Mitigation Measures</i></p> <p>See SMM-AQ-1.</p> <p>SMM-GHG-1 SCAG, in partnership with local air districts, shall continue to work with local jurisdictions to adopt qualified GHG reduction plans (e.g., climate action plans [CAPs]), develop GHG-reducing planning policies, and support local implementation of climate initiatives.</p> <p>SMM-GHG-2 SCAG shall measure and track sustainability progress in the region and foster collaboration through the sharing of best practices across the 191 cities and six counties in the SCAG region (including across SB 535 Disadvantaged Communities) and identifies opportunities for improving sustainability practices.</p> <p><i>Project-Level Mitigation Measures:</i></p> <p>PMM-GHG-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to greenhouse gas emissions. Such measures may include the following or other comparable measures identified by the lead agency:</p> <p>a) Integrate green building measures consistent with CALGreen (California Building Code Title 24), local building codes and other applicable laws, into project design including:</p> <p>i. Use energy efficient materials in building design, construction, rehabilitation, and retrofit.</p> <p>ii. Install energy-efficient lighting, heating, and cooling systems (cogeneration); water heaters; appliances; equipment; and control systems.</p>	<p>Significant and unavoidable (except for Plan's consistency with SB 375)</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> iii. Reduce lighting, heating, and cooling needs by taking advantage of light-colored roofs, trees for shade, and sunlight. iv. Incorporate passive environmental control systems that account for the characteristics of the natural environment. v. Use high-efficiency lighting and cooking devices. vi. Incorporate passive solar design. vii. Use high-reflectivity building materials and multiple glazing. viii. Use no-gas-powered landscape maintenance equipment. ix. Install electric vehicle charging stations. x. Reduce wood burning stoves or fireplaces. xi. Provide bike lanes accessibility and parking at residential developments. xii. Encourage projects to reduce natural gas infrastructure in buildings and/or reduce the use of natural gas appliances, with exceptions for limited uses. b) Reduce emissions resulting from projects through implementation of project features, project design, or other measures, such as those described in Appendix F of the CEQA Guidelines. c) Include off-site measures to mitigate a project’s emissions. d) Measures that consider incorporation of Best Available Control Technology (BACT) during design, construction, and operation of projects to minimize GHG emissions, including but not limited to: <ul style="list-style-type: none"> i. Use energy and fuel-efficient vehicles and equipment; ii. Deployment of zero- and/or near zero emission technologies; iii. Use lighting systems that are energy efficient, such as LED technology; iv. Use the minimum feasible amount of GHG-emitting construction materials; v. Use cement blended with the maximum feasible amount of flash or other materials that reduce GHG emissions from cement production; vi. Incorporate design measures to reduce GHG emissions from solid waste management through encouraging solid waste recycling and reuse; vii. Incorporate design measures to reduce energy consumption and increase use of renewable energy; viii. Incorporate design measures to reduce water consumption; ix. Use lighter-colored pavement where feasible; x. Recycle construction debris to maximum extent feasible; xi. Plant shade trees in or near construction projects where feasible; and xii. Solicit bids that include concepts listed above. e) Measures that encourage transit use, carpooling, bike-share and car-share programs, active transportation, and parking strategies, including, but not limited to the following: 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> i. Promote transit-active transportation coordinated strategies; ii. Increase bicycle carrying capacity on transit and rail vehicles; iii. Improve or increase access to transit; iv. Increase access to common goods and services, such as groceries, schools, and day care; v. Incorporate affordable housing into the project; vi. Incorporate the neighborhood electric vehicle network; vii. Orient the project toward transit, bicycle and pedestrian facilities; viii. Improve pedestrian or bicycle networks, or transit service; ix. Provide traffic calming measures; x. Provide bicycle parking; xi. Limit or eliminate park supply; xii. Unbundle parking costs; xiii. Provide parking cash-out programs; xiv. Implement or provide access to commute reduction program; f) Incorporate bicycle and pedestrian facilities into project designs, maintaining these facilities, and providing amenities incentivizing their use; and planning for and building local bicycle projects that connect with the regional network; g) Improving transit access to rail and bus routes by incentives for construction of transit facilities within developments, and/or providing dedicated shuttle service to transit stations; and h) Adopting employer trip reduction measures to reduce employee trips such as vanpool and carpool programs, providing end-of-trip facilities, and telecommuting programs including but not limited to measures that: <ul style="list-style-type: none"> i. Provide car-sharing, bike sharing, and ride-sharing programs; ii. Provide transit passes; iii. Shift single occupancy vehicle trips to carpooling or vanpooling, for example providing ride-matching services; iv. Provide incentives or subsidies that increase that use of modes other than single-occupancy vehicle; v. Provide on-site amenities at places of work, such as priority parking for carpools and vanpools, secure bike parking, and showers and locker rooms; vi. Provide employee transportation coordinators at employment sites; vii. Provide a guaranteed ride home service to users of non-auto modes. i) Designate a percentage of parking spaces for ride-sharing vehicles or high-occupancy vehicles, and provide adequate passenger loading and unloading for those vehicles; 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> j) Land use siting and design measures that reduce GHG emissions, including: <ul style="list-style-type: none"> i. Developing on infill and brownfields sites; ii. Building compact and mixed-use developments near transit; iii. Retaining on-site mature trees and vegetation, and planting new canopy trees; iv. Measures that increase vehicle efficiency, encourage use of zero and low emissions vehicles, or reduce the carbon content of fuels, including constructing or encouraging construction of electric vehicle charging stations or neighborhood electric vehicle networks, or charging for electric bicycles; and v. Measures to reduce GHG emissions from solid waste management through encouraging solid waste recycling and reuse. vi) Establish methane recovery in Landfills and Wastewater Treatment Plants, where applicable. k) Consult the SCAG Environmental Justice Toolbox available on SCAG’s Environmental Justice webpage for potential measures to address impacts to low-income and/or communities of color. l) Require at least five percent of all new vehicle parking spaces include electric vehicle charging stations, or at a minimum, install the appropriate infrastructure to facilitate sufficient electric charging for passenger vehicles and trucks to plug-in. Encourage electric vehicle capable (branch circuit and raceway) or ready (charging outlet) spaces to accommodate future growth in electric vehicles. m) Encourage telecommuting and alternative work schedules, such as: <ul style="list-style-type: none"> i) Staggered starting times ii) Flexible schedules iii) Compressed work weeks n) Implement commute trip reduction marketing, such as: <ul style="list-style-type: none"> i) New employee orientation of trip reduction and alternative mode options ii) Event promotions iii) Publications o) Implement preferential parking permit program p) Implement school pool and bus programs q) Price workplace parking, such as: <ul style="list-style-type: none"> i) Explicitly charging for parking for its employees ii) Implementing above market rate pricing iii) Validating parking only for invited guests iv) Not providing employee parking and transportation allowances v) Educating employees about available alternatives 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
Hazards and Hazardous Materials		
<p>IMPACT HAZ-1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p>SMM-HAZ-1 SCAG shall work with the Caltrans and the California Highway Patrol to continue to reduce risks associated with the transport of hazardous materials in the SCAG region, through its Consultation role assisting in the development of routes designated for hazardous materials, specifically related to radioactive materials.</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-HAZ-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to the routine transport, use, or disposal of hazardous materials and hazardous materials releases, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Reduce train speeds when train cars contain hazardous material to 40 miles per hour when passing through urbanized areas of any size. b) Limit storage of crude oil tank cars in urbanized areas of any size and provide appropriate security in storage yards for all shipments. c) Notify in advance county and city emergency operations offices of all crude oil shipments, including a contact number that can provide real-time information in the event of an oil train derailment or accident. d) Report quarterly hazardous commodity flow information, including classification and characterization of materials being transported, to all first response agencies (49 Code Fed. Regs. 15.5) along the mainline rail routes used by trains carrying crude oil identified. e) Fund training and outfitting emergency response crews that includes the cost of backfilling personnel while in training. f) Undertake annual emergency responses scenario/field based training including Emergency Operations Center Training activations with local emergency response agencies. 	<p>Significant and unavoidable</p>
<p>IMPACT HAZ-2 Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1 and SMM-HAZ-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-HAZ-1.</p>	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>IMPACT HAZ-3 Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HAZ-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-HAZ-1.</p> <p>PMM-HAZ-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to the release of hazardous materials within 0.25 miles of schools, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Where the construction and operation of projects involves the transport of hazardous materials, avoid transport of such materials within 0.25 miles of schools, when school is in session, wherever feasible. b) Where it is not feasible to avoid transport of hazardous materials, within 0.25 miles of schools on local streets, provide notifications of the anticipated schedule of transport of such materials. 	<p>Significant and unavoidable</p>
<p>IMPACT HAZ-4 Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HAZ-1.</p> <p><i>Project-Level Mitigation Measures</i> PMM-HAZ-3 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to projects that are located on a site which is included on the Cortese List, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) For any listed sites or sites that have the potential for residual hazardous materials as a result of historic land uses, complete a Phase I Environmental Site Assessment, including a review and consideration of data from all known databases of contaminated sites, during the process of planning, environmental clearance, and construction for projects. b) If warranted by the Phase I report, submit to the appropriate agency responsible for hazardous materials/wastes oversight a Phase II Environmental Site Assessment report if warranted by a for the project site. The reports should make recommendations for remedial action, if appropriate, and be signed by a Registered Environmental Assessor, Professional Geologist, or Professional Engineer. c) Implement the recommendations provided in the Phase II Environmental Site Assessment report, where such a report was determined to be necessary for the construction or operation of the project, for remedial action. d) Submit a copy of all applicable documentation required by local, state, and federal environmental regulatory agencies, including but not limited to permit applications, Phase I and II Environmental Site Assessments, human health and ecological risk assessments, remedial action plans, risk management plans, soil management plans, and groundwater management plans. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> e) Conduct soil sampling and chemical analyses of samples, consistent with the protocols established by the U.S. EPA to determine the extent of potential contamination beneath all underground storage tanks (USTs), elevator shafts, clarifiers, and subsurface hydraulic lifts when on-site demolition or construction activities would potentially affect a particular development or building. f) Consult with the appropriate local, state, and federal environmental regulatory agencies to ensure sufficient minimization of risk to human health and environmental resources, both during and after construction, posed by soil contamination, groundwater contamination, or other surface hazards including, but not limited to, underground storage tanks, fuel distribution lines, waste pits and sumps. g) Obtain and submit written evidence of approval for any remedial action if required by a local, state, or federal environmental regulatory agency. h) Cease work if soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums, or other hazardous materials or wastes are encountered), in the vicinity of the suspect material. Secure the area as necessary and take all appropriate measures to protect human health and the environment, including but not limited to, notification of regulatory agencies and identification of the nature and extent of contamination. Stop work in the areas affected until the measures have been implemented consistent with the guidance of the appropriate regulatory oversight authority. i) Soil generated by construction activities should be stockpiled on-site in a secure and safe manner. All contaminated soils determined to be hazardous or non-hazardous waste must be adequately profiled (sampled) prior to acceptable reuse or disposal at an appropriate off-site facility. Complete sampling and handling and transport procedures for reuse or disposal, in accordance with applicable local, state and federal laws and policies. j) Groundwater (including dewatering effluent) pumped from the subsurface should be contained on-site in a secure and safe manner, prior to treatment and disposal, to ensure environmental and health issues are resolved pursuant to applicable laws and policies. Utilize engineering controls, which include impermeable barriers to prohibit groundwater and vapor intrusion into the building. k) As needed and appropriate, prior to issuance of any demolition, grading, or building permit, submit for review and approval by the lead agency (or other appropriate government agency) written verification that the appropriate federal, state and/or local oversight authorities, including but not limited to the Regional Water Quality Control Board (RWQCB), have granted all required clearances and confirmed that the all applicable standards, regulations, and conditions have been met for previous contamination at the site. l) Develop, train, and implement appropriate worker awareness and protective measures to assure that worker and public exposure is minimized to an acceptable level and to prevent any further environmental contamination as a result of construction. m) If asbestos-containing materials (ACM) are found to be present in building materials to be removed, submit specifications signed by a certified asbestos consultant for the removal, encapsulation, or enclosure of the identified ACM in accordance with all applicable laws and regulations, including but 	

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	<p>not necessarily limited to: California Code of Regulations, Title 8; Business and Professions Code; Division 3; California Health and Safety Code Section 25915-25919.7; and other local regulations.</p> <p>n) Where projects include the demolitions or modification of buildings constructed prior to 1978, complete an assessment for the potential presence or lack thereof of ACM, lead based paint, and any other building materials or stored materials classified as hazardous waste by state or federal law.</p> <p>o) Where the remediation of lead-based paint has been determined to be required, provide specifications to the appropriate agency, signed by a certified Lead Supervisor, Project Monitor, or Project Designer for the stabilization and/or removal of the identified lead paint in accordance with all applicable laws and regulations, including but not necessarily limited to: California Occupational Safety and Health Administration’s (Cal OSHA’s) Construction Lead Standard, Title 8 California Code of Regulations Section 1532.1 and Department of Health Services (DHS) Regulation 17 CCR Sections 35001–36100, as may be amended. If other materials classified as hazardous waste by state or federal law are present, the project sponsor should submit written confirmation to the appropriate local agency that all state and federal laws and regulations should be followed when profiling, handling, treating, transporting, and/or disposing of such materials.</p>	
<p>IMPACT HAZ-5 For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area</p>	<p><i>SCAG Mitigation Measures</i> See SMM-NOI-1.</p> <p>SMM-HAZ-2 SCAG shall continue to collaborate with key stakeholders on regional aviation planning issues through the Aviation Technical Advisory Committee (ATAC). The ATAC is a partnership between the airports, transportation agencies and commissions, experts, and other community members within the SCAG region.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-NOI-1.</p>	<p>Significant and unavoidable</p>
<p>IMPACT HAZ-6 Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan</p> <p>IMPACT TR-4 Result in inadequate emergency access.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HAZ-1, SMM-HAZ-2, SMM-WF-1, and SMM-TRA-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-HAZ-1 through PMM-HAZ-3.</p> <p>PMM-HAZ-4 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects which may substantially impair implementation of an adopted emergency response plan or emergency evacuation plan, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p>	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>IMPACT WF-1 Substantially impair an adopted emergency response plan or emergency evacuation plan.</p>	<ul style="list-style-type: none"> • Continue to coordinate locally and regionally based on ongoing review and integration of projected transportation and circulation conditions. • Develop new methods of conveying projected and real time information to citizens using emerging electronic communication tools including social media and cellular networks; • Continue to evaluate lifeline routes for movement of emergency supplies and evacuation. • Prior to construction, project implementation agencies can and should ensure that all necessary local and state road and railroad encroachment permits are obtained. The project implementation agency can and should also comply with all applicable conditions of approval. As deemed necessary by the governing jurisdiction, the road encroachment permits may require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction. Traffic control plans can and should include the following requirements: <ul style="list-style-type: none"> – Identification of all roadway locations where special construction techniques (e.g., directional drilling or night construction) would be used to minimize impacts to traffic flow. – Development of circulation and detour plans to minimize impacts to local street circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone. – Scheduling of truck trips outside of peak morning and evening commute hours. – Limiting of lane closures during peak hours to the maximum extent feasible. – Usage of designated haul routes to minimize truck traffic on local roadways to the maximum extent feasible. – Inclusion of detours for bicycles and pedestrians in all areas potentially affected by project construction. – Installation of traffic control devices as specified in the California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones. – Development and implementation of access plans for highly sensitive land uses such as police and fire stations, transit stations, hospitals, and schools. The access plans would be developed with the facility owner or administrator. To minimize disruption of emergency vehicle access, affected jurisdictions can and should be asked to identify detours for emergency vehicles, which will then be posted by the contractor. Notify in advance the facility owner or operator of the timing, location, and duration of construction activities and the locations of detours and lane closures. – Storage of construction materials only in designated areas. – Coordination with local transit agencies for temporary relocation of routes or bus stops in work zones, as necessary. – Ensure the rapid repair of transportation infrastructure in the event of an emergency through cooperation among public agencies and by identifying critical infrastructure needs necessary for: (a) emergency responders to enter the region, (b) evacuation of affected facilities, and (c) restoration of utilities. 	

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> - Enhance emergency preparedness awareness among public agencies and with the public at large. 	
<p>IMPACT HAZ-7 Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.</p>	<p>This impact is addressed under Impact WF-2. See below.</p>	
Hydrology and Water Quality		
<p>IMPACT HYD-1 Potential to violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.</p>	<p><i>SCAG Mitigation Measures</i></p> <p>SMM-HYD-1 SCAG shall continue to facilitate regional forums for collaboration opportunities, such as through the Sustainable & Resilient Communities Working Group, to share best practices and develop recommendations to create resilient communities in the region. SCAG shall continue to work with stakeholders and the public to encourage regional-scale planning that addresses regional shocks and stressors, such as improved water quality, groundwater, stormwater management, pollution prevention, flooding, wildfire prevention, disaster emergency services, emergency evacuation plans, wildfire resiliency, and earthquake preparedness to the extent practical and feasible through cooperative planning, information sharing, and encouragement of comprehensive control measure development within the SCAG region.</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-HYD-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects from violation of any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, as applicable and feasible. While compliance with the various municipal regional stormwater permits (MS4s) is required by law, not all areas are necessarily covered under one. For those areas that are not covered under a municipal stormwater permit (MS4), such measures may include the following or other comparable measures identified by the lead agency:</p> <ol style="list-style-type: none"> a) Implement best management practices to reduce the peak stormwater runoff from the project site to the maximum extent practicable. b) Complete, and have approved, a Standard Urban Stormwater Management Plan, prior to occupancy of residential or commercial structures. c) Ensure adequate capacity of the surrounding stormwater system to support stormwater runoff from new or rehabilitated structures or buildings. d) Where feasible, restore or expand riparian areas such that there is no net loss of impervious surface as a result of the project. e) Install structural water quality control features, such as drainage channels, detention basins, oil and grease traps, filter systems, and vegetated buffers to prevent pollution of adjacent water resources by 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<p>polluted runoff where required by applicable urban storm water runoff discharge permits, on new facilities.</p> <ul style="list-style-type: none"> f) Provide operational best management practices for street cleaning, litter control, and catch basin cleaning are implemented to prevent water quality degradation in compliance with applicable storm water runoff discharge permits; and ensure treatment controls are in place as early as possible, such as during the acquisition process for rights-of-way, not just later during the facilities design and construction phase. g) Incorporate as appropriate treatment and control features such as detention basins, infiltration strips, and porous paving, other features to control surface runoff and facilitate groundwater recharge into the design of new transportation projects early on in the process to ensure that adequate acreage and elevation contours are provided during the right-of-way acquisition process. h) Upgrade stormwater drainage facilities to accommodate any increased runoff volumes. These upgrades may include the construction of detention basins or structures that will delay peak flows and reduce flow velocities, including expansion and restoration of wetlands and riparian buffer areas. System designs shall be completed to eliminate increases in peak flow rates from current levels. i) Encourage low-impact development (LID) and incorporation of natural spaces that reduce, treat, infiltrate, and manage stormwater runoff flows in all new developments, where practical and feasible. 	
<p>IMPACT HYD-2 Potential to substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HYD-1.</p> <p><i>Project-Level Mitigation Measures</i> PMM-HYD-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects from violation of any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Avoid designs that require continual dewatering where feasible. For projects requiring continual dewatering facilities, implement monitoring systems and long-term administrative procedures to ensure proper water management that prevents degrading of surface water and minimizes adverse impacts on groundwater for the life of the project, Construction designs shall comply with appropriate building codes and standard practices including the CBC. b) Maximize, where practical and feasible, permeable surface area to protect water quality and allow for groundwater recharge. Minimize new impervious surfaces, including the use of in-lieu fees and off-site mitigation. c) Avoid construction and siting on groundwater recharge areas, to prevent conversion of those areas to impervious surface. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>IMPACT HYD-3A Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HYD-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-HYD-1.</p>	<p>Significant and unavoidable</p>
<p>IMPACT HYD-3B Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HYD-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-HYD-1 and PMM-HYD-2.</p>	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>IMPACT HYD-3C Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HYD-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-HYD-1 and PMM-HYD-2.</p>	<p>Significant and unavoidable</p>
<p>IMPACT HYD-3D Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HYD-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-HYD-1 and PMM-HYD-2.</p>	<p>Significant and unavoidable</p>
<p>IMPACT HYD-4 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.</p>	<p><i>SCAG Mitigation Measures</i> See SMM HYD-1.</p> <p><i>Project-Level Mitigation Measures</i> PMM-HYD-4 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures capable of avoiding or reducing the potential impacts of locating structures that would impede or redirect flood flows, as applicable and</p>	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<p>feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <p>a) Ensure that all roadbeds for new highway and rail facilities be elevated at least one foot above the 100-year base flood elevation. In areas affected by coastal flooding, new projects should be designed for resilience with 3.5 feet of sea-level rise, as per California Ocean Protection Council’s strategic guidance. Since alluvial fan flooding is not often identified on FEMA flood maps, the risk of alluvial fan flooding should be evaluated and projects should be sited to avoid alluvial fan flooding. Delineation of floodplains and alluvial fan boundaries should attempt to account for future hydrologic changes caused by global climate change.</p>	
<p>IMPACT HYD-5 Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HYD-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-HYD-2.</p>	<p>Significant and unavoidable</p>
Land Use		
<p>IMPACT LU-1 Potential to physically divide an established community</p>	<p><i>SCAG Mitigation Measures</i> SMM-LU-1 SCAG shall continue to coordinate with local County Transportation Commissions, Caltrans, and other local jurisdictions when siting new facilities in residential areas to facilitate minimizing future impacts on established communities, through cooperation, information sharing, and regional program development as part of SCAG’s ongoing regional planning efforts to promote best planning practices.</p> <p><i>Project-Level Mitigation Measures</i> PMM-LU-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects that physically divide a community, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <p>a) Facilitate connections in communities that have been physically divided through land use projects that build upon and improve existing circulation patterns</p> <p>b) Encourage implementing agencies to orient transportation projects to minimize impacts on existing communities by:</p> <ul style="list-style-type: none"> – Selecting alignments within or adjacent to existing public rights of way. – Design sections above or below-grade to maintain viable vehicular, cycling, and pedestrian connections between portions of communities where existing connections are disrupted by the transportation project. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> - Wherever feasible incorporate direct crossings, overcrossings, or under crossings at regular intervals for multiple modes of travel (e.g., pedestrians, bicyclists, vehicles). c) Where it has been determined that it is infeasible to avoid creating a barrier in an established community, consider other measures to reduce impacts, including but not limited to: <ul style="list-style-type: none"> - Alignment shifts to minimize the area affected. - Reduction of the proposed right-of-way take to minimize the overall area of impact. - Provisions for bicycle, pedestrian, and vehicle access across improved roadways. 	
<p>IMPACT LU-2 Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect</p>	<p><i>SCAG Mitigation Measures</i></p> <p>SMM-LU-2 SCAG shall continue to promote the Intergovernmental Review (IGR) Program as an informational tool by providing information to regionally significant projects as defined in CEQA Guidelines Section 15206 to facilitate consideration of the most currently adopted Connect SoCal 2024. SCAG shall continue to review regionally significant projects submitted to SCAG to include them in the IGR Bi-Monthly Reports that are published on SCAG’s IGR Program website at: https://scag.ca.gov/igr-bi-monthly-report. For more information on SCAG’s IGR Program, please visit: http://www.scag.ca.gov/programs/Pages/IGR.aspx.</p> <p>SMM-LU-3 SCAG shall continue to support local jurisdictions when they update their general plans at least every ten years, as recommended by the Governor’s Office of Planning and Research through the use of the multiple planning and analytical tools provided by SCAG such as the Regional Data Platform and other GIS software. Additionally, SCAG shall continue to facilitate information sharing, such as through the Toolbox Tuesday program to provide webinars on technical information and tools that may be useful for local jurisdictions to assist with their general plan updates, and funding programs, such as Regional Early Action Planning grants and Call for Projects.</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-LU-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects that are due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, as applicable and feasible. When an inconsistency with the adopted general plan policy or land use regulation (adopted for the purpose of avoiding or mitigating an impact) is identified measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Modify the transportation or land use project to eliminate or reduce the conflict; or determine if the environmental, social, economic, and engineering benefits of the project warrant an amendment to the general plan or land use regulation and process said amendment. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
Mineral Resources		
<p>IMPACT MIN-1 Potential to result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p><i>Project-Level Mitigation Measures</i> PMM-MIN-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce the use of mineral resources that could be of value to the region, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Provide for the efficient use of known aggregate and mineral resources or locally important mineral resource recovery sites, by ensuring that the consumptive use of aggregate resources is minimized and that access to recoverable sources of aggregate is not precluded, as a result of construction, operation and maintenance of projects. b) Where avoidance is infeasible, minimize impacts to the efficient and effective use of recoverable sources of aggregate through measures that have been identified in county and city general plans, or other comparable measures such as: <ul style="list-style-type: none"> 1) Recycle and reuse building materials resulting from demolition, particularly aggregate resources, to the maximum extent practicable. 2) Identify and use building materials, particularly aggregate materials, resulting from demolition at other construction sites in the SCAG region, or within a reasonable hauling distance of the project site. 3) Design transportation network improvements in a manner (such as buffer zones or the use of screening) that does not preclude adjacent or nearby extraction of known mineral and aggregate resources following completion of the improvement and during long-term operations. 4) Avoid or reduce impacts on known aggregate and mineral resources and mineral resource recovery sites through the evaluation and selection of project sites and design features (e.g., buffers) that minimize impacts on land suitable for aggregate and mineral resource extraction by maintaining portions of MRZ-2 areas in open space or other general plan land use categories and zoning that allow for mining of mineral resources. 	<p>Significant and unavoidable</p>
<p>IMPACT MIN-2 Potential to result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-MIN-1.</p>	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
Noise		
<p>IMPACT NOI-1 Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-LU-1 through SMM-LU-3, SMM-POP-1, and SMM-POP-2</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-NOI-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce ambient noise levels in the vicinity of the project, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Install temporary noise barriers during construction between noise sources and noise-sensitive land uses and species. b) Include permanent noise barriers and sound-attenuating features as part of the project design between noise sources and noise-sensitive land uses and species. Barriers could be in the form of outdoor barriers, sound walls, buildings, or earth berms to attenuate noise at adjacent sensitive uses. Sound-attenuating features could be in the form of grade separation, buffer zones, reduced-noise paving materials, and traffic calming measures. c) Schedule construction activities consistent with the allowable hours pursuant to applicable general plan noise element or noise ordinance d) Post procedures and phone numbers at the construction site for notifying the lead agency staff, local Police Department, and construction contractor (during regular construction hours and off-hours), along with permitted construction days and hours, complaint procedures, and who to notify in the event of a problem. e) Notify neighbors and occupants within 300 feet of the project construction area at least 30 days in advance of anticipated times when noise levels are expected to exceed limits established in the noise element of the general plan or noise ordinance. f) Designate an on-site construction complaint and enforcement manager for the project. g) Ensure that construction equipment is properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds silencers, wraps). All intake and exhaust ports on power equipment shall be muffled or shielded. h) Use hydraulically or electrically powered tools (e.g., jack hammers, pavement breakers, and rock drills) for project construction to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust should be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves should be used, if such jackets are commercially available, and this could achieve a further reduction of 5 dBA. Quieter procedures should be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> i) Where feasible, design projects so that they are depressed below the grade of the existing noise-sensitive receptor, creating an effective barrier between the roadway and sensitive receptors. j) Where feasible, improve the acoustical insulation of dwelling units where setbacks and sound barriers do not provide sufficient noise reduction. k) Use rubberized asphalt or “quiet pavement” to reduce road noise for new roadway segments, roadways in which widening or other modifications require re-pavement, or normal reconstruction of roadways where re-pavement is planned l) Projects that require pile driving or other construction noise above 90 dBA in proximity to sensitive receptors, should reduce potential pier drilling, pile driving and/or other extreme noise generating construction impacts greater than 90 dBA; a set of site-specific noise attenuation measures should be completed under the supervision of a qualified acoustical consultant. m) Monitor the effectiveness of noise reduction measures by taking noise measurements and installing adaptive mitigation measures to achieve the standards for ambient noise levels established by the noise element of the general plan or noise ordinance. n) Use equipment and trucks with the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds, wherever feasible) for project construction. o) Stationary noise sources can and should be located as far from adjacent sensitive receptors and species to the maximum extent feasible, and they should be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the lead agency (or other appropriate government agency) to provide equivalent noise reduction. p) Use of portable barriers in the vicinity of sensitive receptors during construction. q) Implement noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings (for instance by the use of sound blankets) and implement if such measures are feasible and would noticeably reduce noise impacts. r) Monitor the effectiveness of noise attenuation measures by taking noise measurements. s) Maximize the distance between noise-sensitive land uses and new roadway lanes, roadways, rail lines, transit centers, park-and-ride lots, and other new noise-generating facilities. 	
<p>IMPACT NOI-2 Generation of excessive groundborne vibration or groundborne noise levels.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-LU-1 through SMM-LU-3, SMM-POP-1, and SMM-POP-2</p> <p><i>Project-Level Mitigation Measures</i> See PMM-NOI-1.</p> <p>PMM-NOI-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to violating air quality standards. Such measures may include the following or other comparable measures identified by the lead agency:</p>	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> a) For projects that require pile driving or other construction techniques that result in excessive vibration, such as blasting, determine the potential vibration impacts to the structural integrity of the adjacent buildings within 50 feet of pile driving locations. b) For projects that require pile driving or other construction techniques that result in excessive vibration, such as blasting, determine the threshold levels of vibration and cracking that could damage adjacent historic or other structure, and design means and construction methods to not exceed the thresholds. c) For projects where pile driving would be necessary for construction due to geological conditions, utilize quiet pile driving techniques such as predrilling the piles to the maximum feasible depth, where feasible. Predrilling pile holes will reduce the number of blows required to completely seat the pile and will concentrate the pile driving activity closer to the ground where pile driving noise can be shielded more effectively by a noise barrier/curtain and reduce the vibration occurrences and magnitude. d) Perform construction activities within permitted hours in accordance with local jurisdiction regulation. e) Properly maintain construction equipment and outfit construction equipment with the best available noise suppression devices (e.g., mufflers, silences, wraps). 	
<p>IMPACT NOI-3 For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HAZ-2.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-NOI-1.</p>	<p>Significant and unavoidable</p>
Population and Housing		
<p>IMPACT POP-1 Induce substantial unplanned population growth to areas of the region either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., by</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1, SMM-LU-3, SMM-TRA-1, and SMM-TRA-2</p> <p>SMM-POP-1 SCAG shall continue to facilitate collaboration forums, such as through SCAG’s Housing Group, and host public outreach events in various formats that respond to issues that shape the housing crisis and share information on sustainable housing development and potential funding opportunities.</p> <p>SMM-POP-2 SCAG shall continue to produce a variety of demographic, economic, education, housing, public health, and transportation information to facilitate data exchange for local jurisdictions across the region, through existing web-based planning tools, such as SCAG Regional Data Platform (RDP). Local jurisdictions may</p>	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
extending roads and other infrastructure)	utilize for a variety of planning and community outreach purposes including project and program planning and grant development.	
IMPACT POP-2 Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1, SMM-POP-1, and SMM POP-2.</p> <p><i>Project-Level Mitigation Measures</i> PMM-POP-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce the displacement of existing housing, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Evaluate alternate route alignments and transportation facilities that minimize the displacement of homes and businesses. Use an iterative design and impact analysis where impacts to homes or businesses are involved to minimize the potential of impacts on housing and displacement of people. b) Prioritize the use existing ROWs, wherever feasible. c) Develop a construction schedule that minimizes potential neighborhood deterioration from protracted waiting periods between right-of-way acquisition and construction. d) Review capacities of available urban infrastructure and augment capacities as needed to accommodate demand in locations where growth is desirable to the local lead Agency and encouraged by the SCS (primarily TPAs, where applicable). e) When General Plans and other local land use regulations are amended or updated, use the most recent growth projections and RHNA allocation plan. 	Significant and unavoidable
Fire Services		
IMPACT PS-1 Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1, SMM-HYD-1, SMM-WF-1, and SMM-WF-2.</p> <p><i>Project-Level Mitigation Measures</i> See PMM AES-1, PMM AQ-1, PMM AQ-2, PMM-BIO-1, PMM-BIO-2, PMM-BIO-4, PMM-BIO-5, PMM-CUL-1, PMM-CUL-2, PMM-GEO-1, PMM-GEO-2, PMM-GHG-1, PMM-HAZ-2 through PMM-HAZ-4, PMM-NOI-1, PMM-NOI-2, PMM-TCR-1, PMM-UTIL-1, and PMM-WF-2.</p> <p>PMM-PS-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects of constructing new or physically altered fire and police facilities, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Coordinate with fire and police protection services agencies to ensure that there are adequate facilities to maintain acceptable service ratios, response times or other performance objectives for fire and police protection services and that any required additional construction of buildings is incorporated into the project description. 	Significant and unavoidable

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
times, or other performance objectives.	b) Where current levels of services at the project site are found to be inadequate, provide fair share contributions towards infrastructure improvements, as appropriate and applicable, to mitigate identified CEQA impacts.	
Police Services		
IMPACT PS-2 Result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities, need for new or physically altered police facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives.	<p><i>SCAG Mitigation Measures</i> See SMM-HYD-1, SMM-LU-1 through SMM-LU-3, SMM-POP-1 and SMM-POP-2.</p> <p><i>Project-Level Mitigation Measures</i> See PMM AES-1, PMM AQ-1, PMM AQ-2, PMM-BIO-1, PMM-BIO-2, PMM-BIO-4, PMM-BIO-5, PMM-CUL-1, PMM-CUL-2, PMM-GEO-1, PMM-GEO-2, PMM-GHG-1, PMM-HAZ-2 through PMM-HAZ-4, PMM-NOI-1, PMM-NOI-2, PMM-PS-1, PMM-TCR-1, PMM-UTIL-1, and PMM-WF-2.</p>	Significant and unavoidable
Schools		
IMPACT PS-3 Result in substantial adverse physical impacts associated with the provision of new or physically altered educational facilities, need for new or physically altered educational facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives.	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1, SMM-LU-1 through SMM-LU-3, SMM-POP-1 and SMM-POP-2.</p> <p><i>Project-Level Mitigation Measures</i> See PMM AES-1, PMM AQ-1, PMM AQ-2, PMM-BIO-1, PMM-BIO-2, PMM-BIO-4, PMM-BIO-5, PMM-CUL-1, PMM-CUL-2, PMM-GEO-1, PMM-GEO-2, PMM-GHG-1, PMM-HAZ-2 through PMM-HAZ-4, PMM-NOI-1, PMM-NOI-2, PMM-TCR-1, PMM-UTIL-1, and PMM-WF-2.</p> <p>PMM-PS-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects of constructing new or physically altered school facilities, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <p>a) Where construction or expansion of school facilities is required to meet public school service ratios, support expansion of such facilities, for example by ensuring safe routes to schools.</p>	Significant and unavoidable

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
Library Services		
<p>IMPACT PS-4 Result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, need for new or physically altered library facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1, SMM-LU-1 through SMM-LU-3, SMM-POP-1, and SMM-POP-2</p> <p><i>Project-Level Mitigation Measures</i> See PMM AES-1, PMM AQ-1, PMM AQ-2, PMM-BIO-1, PMM-BIO-2, PMM-BIO-4, PMM-BIO-5, PMM-CUL-1, PMM-CUL-2, PMM-GEO-1, PMM-GEO-2, PMM-GHG-1, PMM-HAZ-2 through PMM-HAZ-4, PMM-NOI-1, PMM-NOI-2, PMM-TCR-1, PMM-UTIL-1, and PMM-WF-2.</p>	<p>Significant and unavoidable</p>
Parks		
<p>IMPACT PS-5 Result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, or other performance objectives.</p>	<p>This impact is addressed under Impact REC-2. See below.</p>	<p>—</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
Recreation		
<p>IMPACT REC-1 Potential to increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-LU-1 through SMM-LU-3, SMM-POP-1 and SMM-POP-2.</p> <p>SMM-REC-1 SCAG shall continue to encourage and recommend approaches to help local jurisdictions improve residential access to, and use of, existing neighborhood and regional parks through information sharing and regional forums for collaboration, such as the Equity Working Group.</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-REC-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects on the use of existing neighborhood and regional parks or other recreational facilities, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Prior to the issuance of permits, where projects require the construction or expansion of recreational facilities or the payment of equivalent Quimby fees, consider increasing the accessibility to natural areas and lands for outdoor recreation from the proposed project area, in coordination with local and regional open space planning and/or responsible management agencies. b) Prior to the issuance of permits, where projects require the construction or expansion of recreational facilities or the payment of equivalent Quimby fees, encourage patterns of urban development and land use which reduce costs on infrastructure and make better use of existing facilities, using strategies such as: <ul style="list-style-type: none"> i. Increasing the accessibility to natural areas for outdoor recreation ii. Utilizing “green” development techniques iii. Promoting water-efficient land use and development iv. Encouraging multiple uses, such as the joint use of schools v. Including trail systems and trail segments in General Plan recreation standards 	<p>Significant and unavoidable</p>
<p>IMPACT REC-2 Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.</p> <p>IMPACT PS-5 Result in substantial</p>	<p><i>SCAG Mitigation Measures</i> See SMM-LU-1 through SMM-LU-3, SMM-POP-1, SMM-POP-2, and SMM-REC-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-REC-1, PMM-AQ-2, and PMM-NOI-1.</p>	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>adverse physical impacts associated with the provision of new or physically altered park facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives.</p>		
Transportation, Traffic, and Safety		
<p>IMPACT TRA-1 Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.</p>	<p><i>SCAG Mitigation Measures</i> See SMM LU-3 AND SMM-POP-2.</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-TRA-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to transportation impacts. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> For future land use development projects, lead agencies shall encourage the incorporation of transit, bicycle, pedestrian, and micro-mobility facilities, features, and services in project designs, as well as encourage developers to provide information regarding the availability of these facilities and services to residents, tenants, and owners in order to facilitate increased access to and utilization of transit and active transportation services and facilities. 	<p>Significant and unavoidable</p>
<p>IMPACT TRA-2 Conflict or be inconsistent with CEQA Guidelines section 15064.3(b).</p>	<p><i>SCAG Mitigation Measures</i> SEE SMM-POP-2.</p> <p>SMM-TRA-1 SCAG shall facilitate the reduction of vehicle miles traveled (VMT) and impacts to circulation and access through mobility improvements and by encouraging transit/rail and active transportation use via stakeholder forums (e.g., quarterly Safe and Active Streets Working Group meetings, bimonthly Regional Transit Technical Advisory Committee meetings, monthly Active Transportation Program check-ins with County Transportation Commissions). These objectives will also be facilitated through the hosting of regional forums for policy makers, County Transportation Commissions, planning agencies, local jurisdictions, and state partners to promote information sharing.</p> <p>SMM-TRA-2 SCAG shall continue to support development of local and regional SB 743 implementation programs.</p> <p>SMM-TRA-3 SCAG shall continue to develop and support its program for reducing average daily number of SCAG employees' commute vehicle trips.</p>	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<p><i>Project-Level Mitigation Measures</i></p> <p>PMM-TRA-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to transportation impacts. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> • Transportation demand management (TDM) strategies should be incorporated into individual land use and transportation projects and plans, as part of the planning process. Local agencies should incorporate strategies identified in the Federal Highway Administration’s publication: Integrating Demand Management into the Transportation Planning Process: A Desk Reference (August 2012) into the planning process (FHWA 2012). For example, the following strategies may be included to encourage use of transit and non-motorized modes of transportation and reduce vehicle miles traveled on the region’s roadways: <ul style="list-style-type: none"> – Include TDM mitigation requirements for new developments; – Incorporate supporting infrastructure for non-motorized modes, such as, bike lanes, secure bike parking, sidewalks, and crosswalks; – Provide incentives to use alternative modes and reduce driving, such as, universal transit passes, road and parking pricing; – Implement parking management programs, such as parking cash-out, priority parking for carpools and vanpools; – Develop TDM-specific performance measures to evaluate project-specific and system-wide performance; – Incorporate TDM performance measures in the decision-making process for identifying transportation investments; – Implement data collection programs for TDM to determine the effectiveness of certain strategies and to measure success over time; and – Set aside funding for TDM initiatives. <p>The increase in per capita VMT on facilities experiencing LOS F represents a significant impact compared to existing conditions. To assess whether implementation of these specific mitigation strategies would result in measurable traffic congestion reductions, implementing actions may need to be further refined within the overall parameters of the proposed Plan and matched to local conditions in any subsequent project-level environmental analysis.</p>	
<p>IMPACT TRA-3 Substantially increase hazards due to geometric design feature (e.g., sharp curves or dangerous intersections)</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1.</p> <p><i>Project-Level Mitigation Measures</i></p> <p>PMM-TRA-3 Prepare a sight distance analysis as needed for locations where sight lines could be impeded. The sight distance analysis to be prepared according to the jurisdiction’s applicable Municipal Code requirements</p>	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
or incompatible uses (e.g., farm equipment).	and the Caltrans Highway Design Manual (HCM) standards and guidelines, and should recommend safety improvements as appropriate such as limited use areas (e.g., low-height landscaping), and on-street parking restrictions (e.g., red curb), and any turning restrictions (e.g., right-in/right-out).	
IMPACT TRA-4 Result in inadequate emergency access.	This impact is addressed in Section 3.9, Hazards and Hazardous Materials, Impact HAZ-6 . See above.	
Tribal Cultural Resources		
<p>IMPACT TCR-1 Cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</p> <p>Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or</p> <p>A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of</p>	<p><i>SCAG Mitigation Measures</i> See SMM-CUL-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-CUL-1.</p> <p>PMM-TCR-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects on tribal cultural resources. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) Avoid and/or preserve of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria b) Treat the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following: protecting the cultural character and integrity of the resource; protecting the traditional use of the resource; and protecting the confidentiality of the resource; c) Provide permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places; and protecting the resource. d) If tribal cultural resources are found, then the lead agency should consider tribal construction monitoring. 	Significant and unavoidable

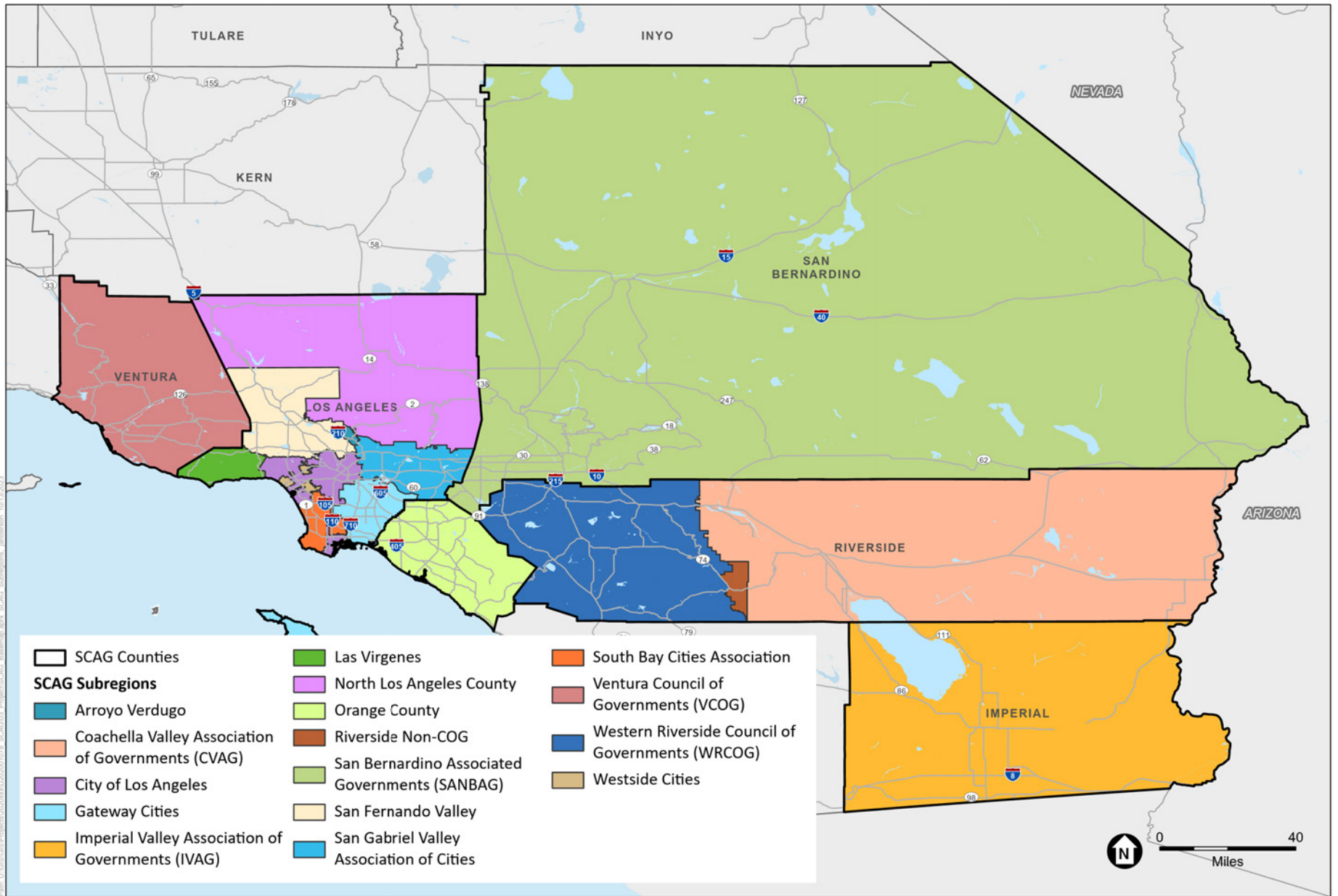
SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
<p>Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.</p>		
Utilities and Service Systems		
<p>IMPACT UTIL-1 Require or result in the relocation or construction of new or expanded water wastewater treatment or storm water drainage , electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.</p> <p>IMPACT UTIL-2 Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project’s projected demand in addition to the provider’s existing commitments.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HYD-1</p> <p><i>Project-Level Mitigation Measures</i> See PMM-HYD-1.</p> <p>PMM-UTIL-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects on utilities and service systems, particularly for construction of wastewater facilities, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> • During the design and CEQA review of individual future projects, implementing agencies and projects sponsors shall determine whether sufficient wastewater capacity exists for the proposed projects. The proposed development can and should be served by its existing or planned treatment capacity. If adequate capacity does not exist, project sponsors shall coordinate with the relevant service provider to ensure that adequate public services and utilities could accommodate the increased demand, and if not, infrastructure improvements for the appropriate public service or utility shall be identified in each project’s CEQA documentation. The relevant public service provider or utility shall be responsible for undertaking project-level review as necessary to provide CEQA clearance for new facilities. <p>PMM-UTIL-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to ensure sufficient water supplies, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ol style="list-style-type: none"> a) Reduce exterior consumptive uses of water in public areas, and should promote reductions in private homes and businesses, by shifting to drought-tolerant native landscape plantings, using weather-based irrigation systems, educating other public agencies about water use, and installing related water pricing incentives. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> b) Promote the availability of drought-resistant landscaping options and provide information on where these can be purchased. Use of reclaimed water especially in median landscaping and hillside landscaping can and should be implemented where feasible. c) Implement water conservation best practices such as low-flow toilets, water-efficient clothes washers, water system audits, and leak detection and repair. d) For projects located in an area with existing reclaimed water conveyance infrastructure and excess reclaimed water capacity, use reclaimed water for non- potable uses, especially landscape irrigation. For projects in a location planned for future reclaimed water service, projects should install dual plumbing systems in anticipation of future use. Large developments could treat wastewater onsite to tertiary standards and use it for non-potable uses onsite. 	
<p>IMPACT UTIL-3 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-USSWS-1 and SMM-HYD-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-UTIL-2.</p>	Significant and unavoidable
<p>IMPACT UTIL-4 Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals</p>	<p><i>SCAG Mitigation Measures</i> SMM-USSW-1 SCAG shall continue to provide support for coordinating with waste management agencies, and appropriate local and regional jurisdictions, and sharing information to facilitate and encourage diversion of solid waste where applicable, appropriate, and feasible.</p> <p><i>Project-Level Mitigation Measures</i> PMM-UTIL-3 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce the generation of solid waste, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <p>Integrate green building measures consistent with CALGreen (California Building Code Title 24) into project design including, but not limited to the following:</p> <ul style="list-style-type: none"> a) Reuse and minimize construction and demolition (C&D) debris and diversion of C&D waste from landfills to recycling facilities. b) Include of a waste management plan that promotes maximum C&D diversion. c) Source reduction through (1) use of materials that are more durable and easier to repair and maintain, (2) design to generate less scrap material through dimensional planning, (3) increased recycled content, (4) use of reclaimed materials, and (5) use of structural materials in a dual role as finish material (e.g., stained concrete flooring, unfinished ceilings, etc.). d) Reuse existing structure and shell in renovation projects. 	Significant and unavoidable

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> e) Develop indoor recycling program and space. f) Discourage the siting of new landfills unless all other waste reduction and prevention actions have been fully explored. If landfill siting or expansion is necessary, site landfills with an adequate landfill-owned, undeveloped land buffer to minimize the potential adverse impacts of the landfill in neighboring communities. g) Discourage exporting of locally generated waste outside of the SCAG region during the construction and implementation of a project. Encourage disposal within the county where the waste originates as much as possible. Promote green technologies for long-distance transport of waste (e.g., clean engines and clean locomotives or electric rail for waste-by-rail disposal systems) where appropriate and feasible. h) Encourage waste reduction goals and practices and look for opportunities for voluntary actions to exceed the 80 percent waste diversion target. i) Encourage the development of local markets for waste prevention, reduction, and recycling practices by supporting recycled content and green procurement policies, as well as other waste prevention, reduction and recycling practices. j) Develop ordinances that promote waste prevention and recycling activities such as: requiring waste prevention and recycling efforts at all large events and venues; implementing recycled content procurement programs; and developing opportunities to divert food waste away from landfills and toward food banks and composting facilities. k) Develop and site composting, recycling, and conversion technology facilities that have minimum environmental and health impacts. l) Integrate reuse and recycling into residential industrial, institutional, and commercial projects. m) Provide education and publicity about reducing waste and available recycling services. n) Implement or expand city or county-wide recycling and composting programs for residents and businesses. This could include extending the types of recycling services offered (e.g., to include food and green waste recycling) and providing public education and publicity about recycling services. 	
<p>IMPACT UTIL-5 Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-USSW-1</p> <p><i>Project-Level Mitigation Measures</i> See PMM-UTIL-3.</p>	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
Wildfire		
<p>IMPACT WF-1 Substantially impair an adopted emergency response plan or emergency evacuation plan.</p>	<p>This impact is addressed in Section 3.9, Hazards and Hazardous Materials, Impact HAZ-6. See above.</p>	
<p>IMPACT WF-2 Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.</p> <p>IMPACT HAZ-7 Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-GEN-1, SMM-HAZ-1, SMM-HAZ-2, SMM-HYD-1, SMM-LU-1 through SMM-LU-3, and SMM-POP-1 and SMM-POP-2.</p> <p>SMM-WF-1 SCAG shall continue to provide a regional forum for collaboration in planning, communication, and information sharing on best practices around wildfire resilience.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-HAZ-5</p> <p>PMM-WF-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce wildfire risk, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ol style="list-style-type: none"> a) Launch fire prevention education for local cities and counties such that local fire agencies, homeowners, as well as commercial and industrial businesses are aware of potential sources of fire ignition and the related procedures to curb or lessen any activities that might initiate fire ignition. b) Ensure structures in high fire risk areas are built to current state and federal standards which serve to greatly increase the chances the structure will survive a wildfire and also allow for people to shelter-in-place. c) Improve road access for emergency response and evacuation so people can evacuate safely and timely when necessary. d) Improve, and educate regarding, local emergency communications and notifications with residents and businesses. e) Enforce defensible space regulations to keep overgrown and unmanaged vegetation, accumulations of trash and other flammable material away from structures. f) Provide public education about wildfire risk and fire prevention measures, and safety procedures and practices to allow for safe evacuation and/or options to shelter-in-place g) Include external sprinklers with an independent water source to reduce flammability of structures. h) Include local solar power paired with batteries to reduce power flow in electricity lines. i) For developments in high fire-prone areas, have a fire protection plan for residents and businesses. 	<p>Significant and unavoidable</p>

SIGNIFICANCE THRESHOLD AND PROJECT IMPACTS	MITIGATION MEASURES	RESIDUAL IMPACT
	<ul style="list-style-type: none"> j) Provide fire hazard and fire safety education for homeowners in or near fire hazard areas. k) Developments in fire-prone areas should have fire-resistant feature, such as: <ul style="list-style-type: none"> 1) Ember-resistant vents 2) Fire-resistant roofs 3) Surrounding defensible space 4) Proper maintenance and upkeep of structures and surrounding area 	
<p>IMPACT WF-3 Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risks or that may result in temporary or ongoing impacts to the environment.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-WF-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-HAZ-4.</p> <p>PMM-WF-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to wildfire risk, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:</p> <ul style="list-style-type: none"> a) New development or infrastructure activity within very high hazard severity zones or SRAs to: <ul style="list-style-type: none"> 1) Submit a fire protection plan including the designation of fire watch staff; 2) Maintain water and other fire suppression equipment designated solely for firefighting on site for any construction and maintenance activities; 3) Locate construction and maintenance equipment in designated “safe areas” such that they do not discharge combustible materials; and 4) Designate trained fire watch staff during project construction to reduce risk of fire hazards. 	<p>Significant and unavoidable</p>
<p>IMPACT WF-4 Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope stability, or drainage changes.</p>	<p><i>SCAG Mitigation Measures</i> See SMM-HYD-1, SMM-LU-1 through SMM-LU-3, and SMM-WF-1.</p> <p><i>Project-Level Mitigation Measures</i> See PMM-WF-1, PMM-WF-2, PMM-HYD-1, and PMM-HAZ-4.</p>	<p>Significant and unavoidable</p>

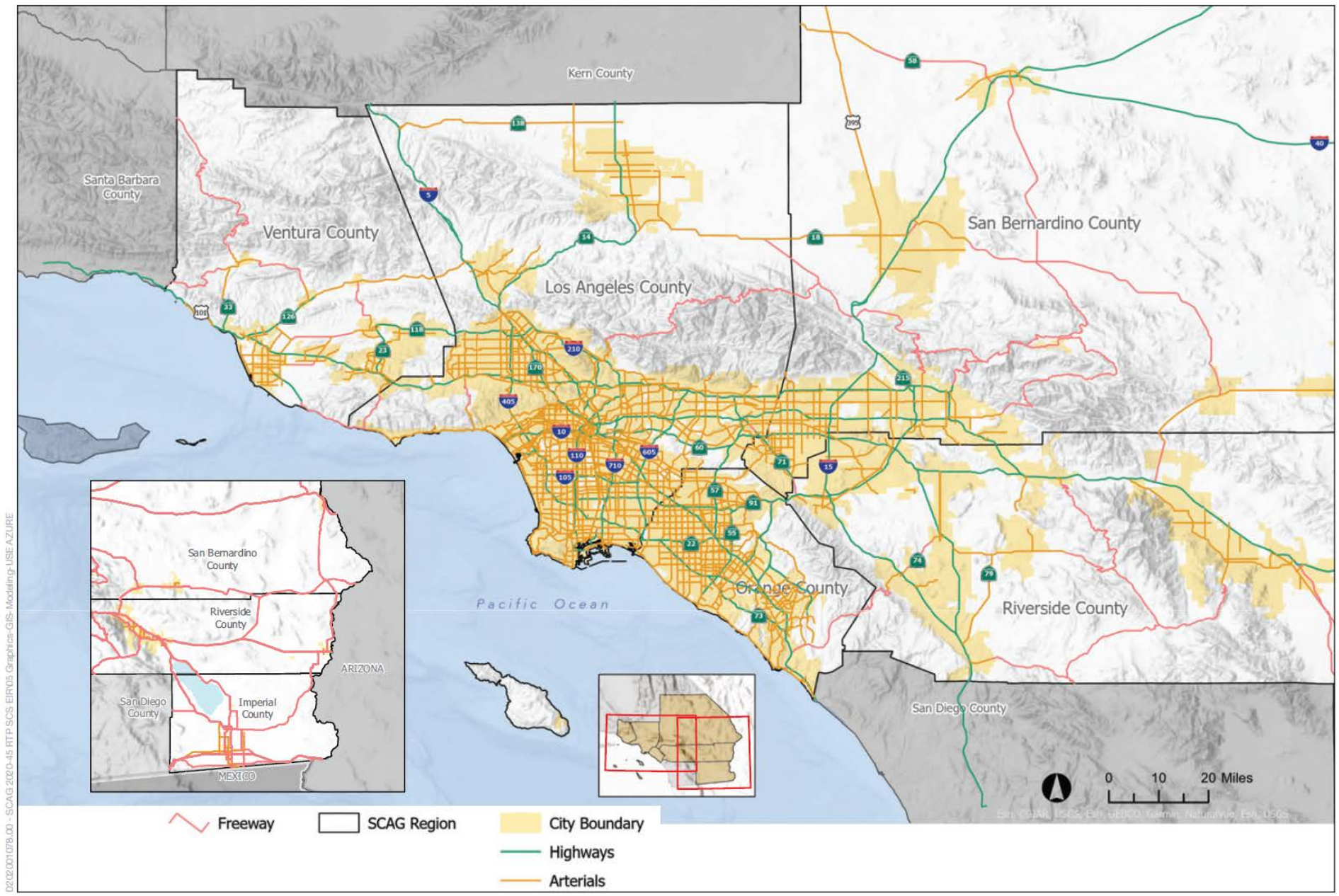


SOURCE: ESA, 2023

Connect SoCal 2024 PEIR

Map ES-2
SCAG Subregions





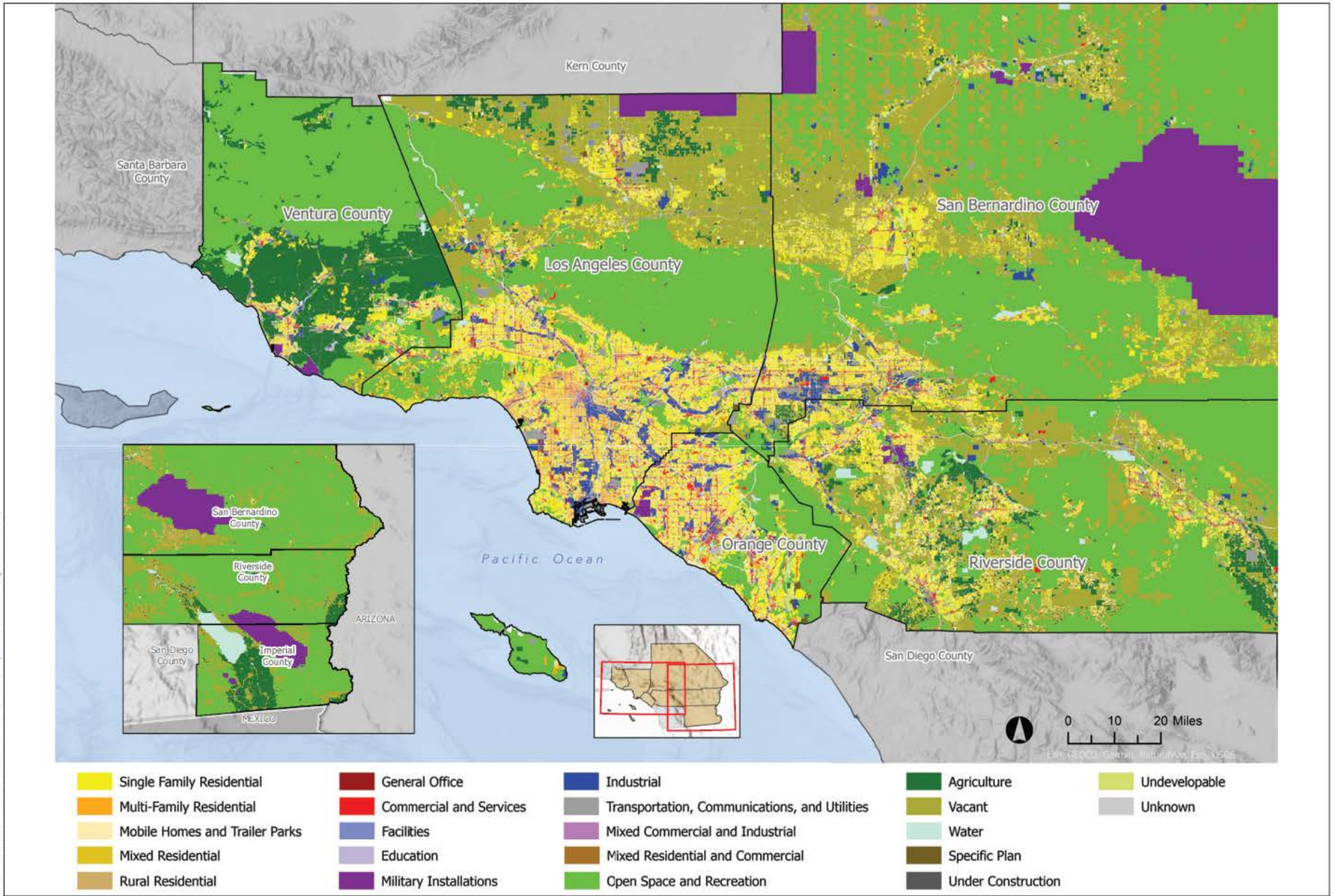
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SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map ES-3
Existing Arterial System, 2019





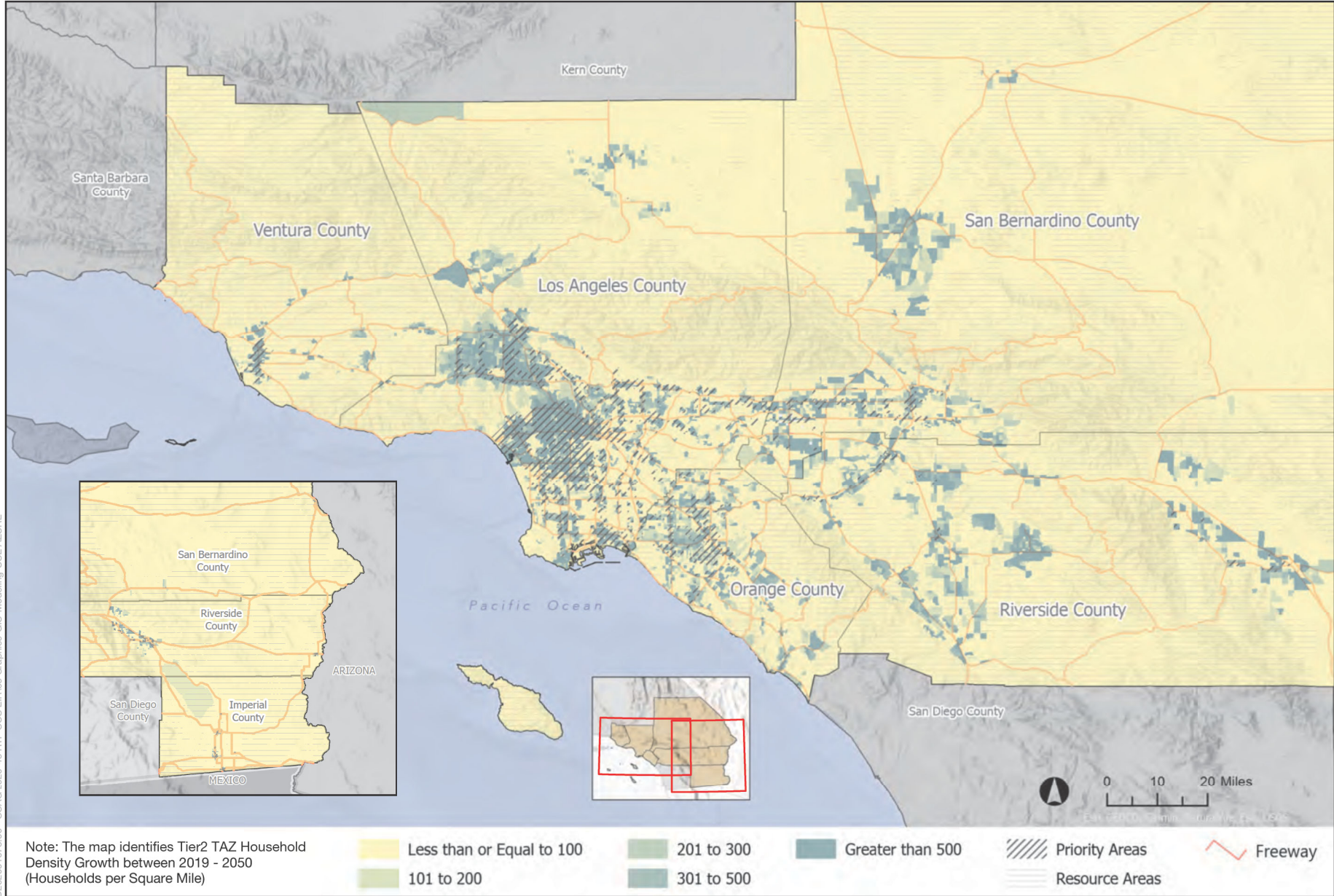
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SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map ES-4
Existing Land Use





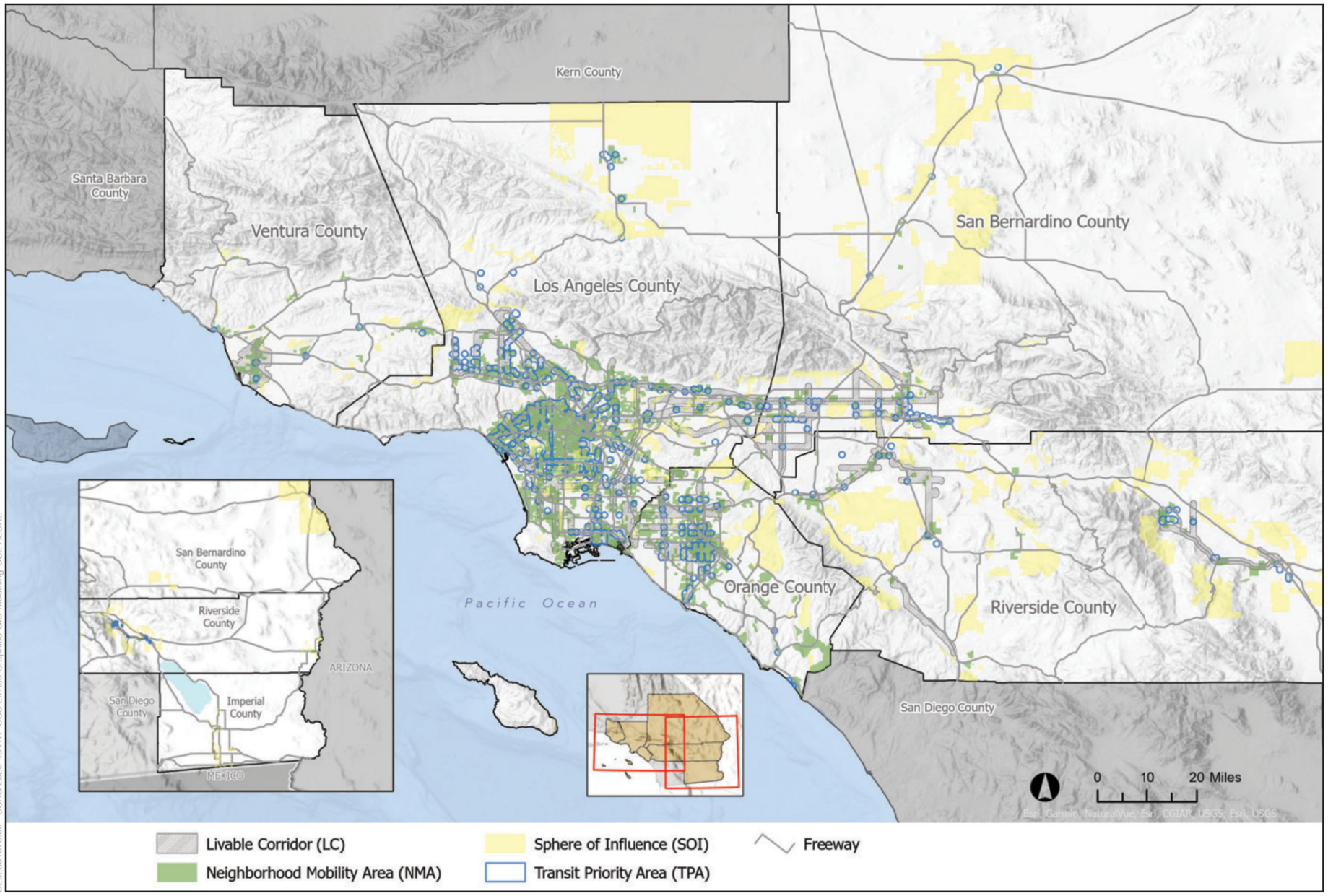
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SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map ES-5
Forecasted Regional Development Pattern





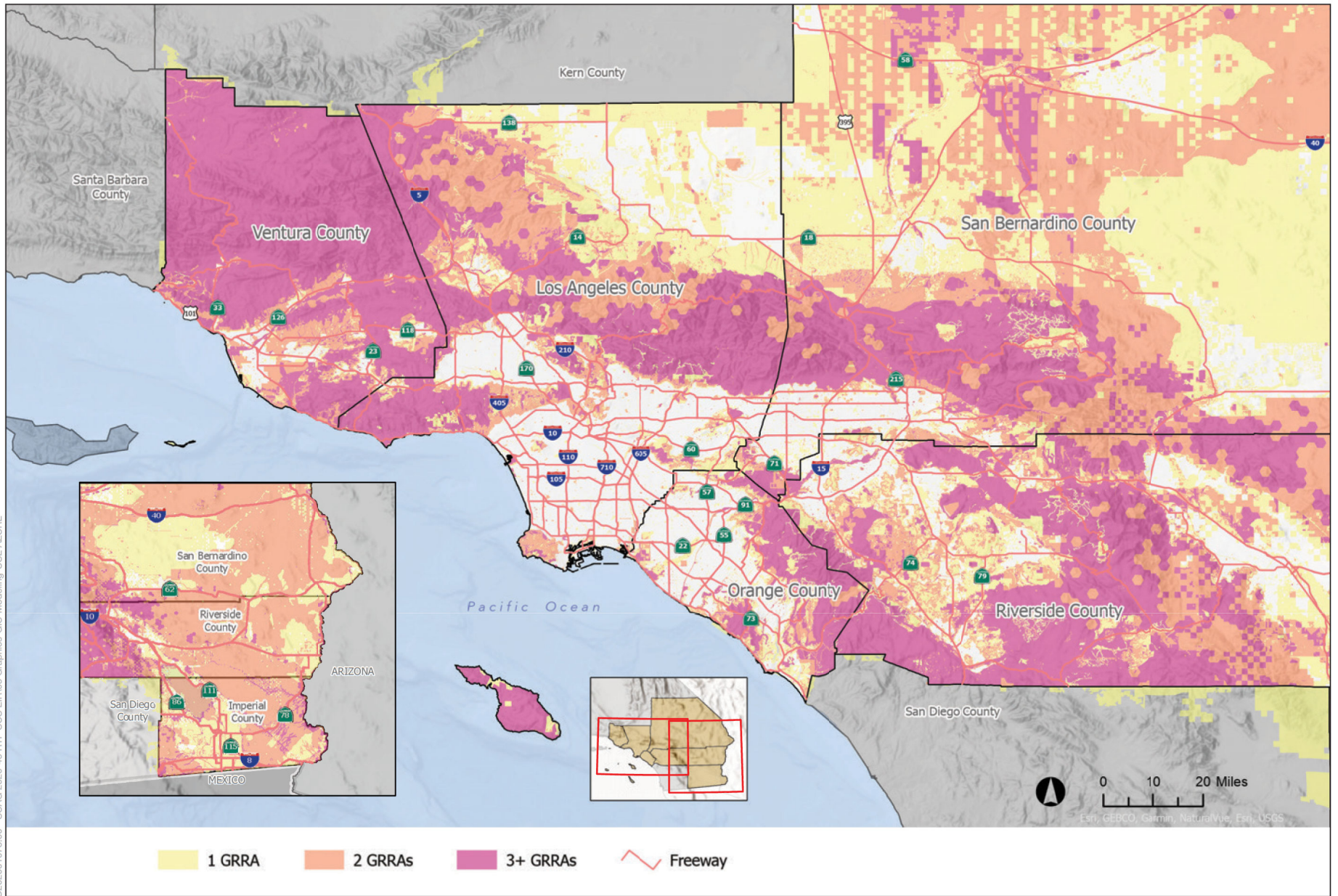
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SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map ES-6
 Priority Development Areas





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SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map ES-7
Green Region Resource Areas



ES.9 SOURCES

California Department of Fish and Wildlife (CDFW) 2023.

Federal Highway Administration (FHWA). 2010. *Transportation Conformity: A Basic Guide for State and Local Officials*. Revised 2010. FHWA-HEP-11-001.

http://www.fhwa.dot.gov/environment/air_quality/conformity/guide/guide10.cfm.

Southern California Association of Governments (SCAG). 2023. Connect SoCal Demographics & Growth Forecast. Draft Technical Report.

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CHAPTER 1

Introduction

- 1.1 SCAG Region and Authority
- 1.2 Purpose and Scope of the Environmental Impact Report
- 1.3 Baseline for Determining Significance and Thresholds of Significance
- 1.4 Consideration of Regional Population Growth and Pattern of Growth
- 1.5 Plan Alternatives
- 1.6 Mitigation Measures
- 1.7 Public Participation for the Plan
- 1.8 Public Participation and Consultation for the 2024 PEIR
- 1.9 Streamlining Environmental Review
- 1.10 Organization of the 2024 PEIR
- 1.11 Sources

The Southern California Association of Governments (SCAG) prepared this Connect SoCal 2024 Program Environmental Impact Report (2024 PEIR), pursuant to the California Environmental Quality Act (CEQA), for the proposed 2024–2050 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), referred to as “Connect SoCal 2024”, “Plan” or “Project”.

SCAG’s jurisdiction comprises a six-county region that includes the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura, as well as 191 cities. SCAG is the metropolitan planning organization (MPO) for this region, designated pursuant to Title 23 United States Code (USC) 134(d)(1), and has the primary responsibility, through its Regional Council, for consideration of Connect SoCal 2024 for approval, and thus serves as the Lead Agency under CEQA. SCAG published a Notice of Preparation (NOP) for this 2024 PEIR, pursuant to CEQA Section 21080.4 and CEQA Guidelines (Association of Environmental Professionals, 2023) Sections 15082 and 15375 on October 17, 2022 (SCAG 2022a). Given the regional level of analysis provided in a RTP/SCS for a large geographic area with a minimum 20-year planning horizon, SCAG determined a Program EIR (PEIR) is the appropriate type of EIR for Connect SoCal 2024.

Connect SoCal 2024 is a long-range regional transportation plan that provides a vision for regional transportation investments, integrated with land use strategies, over a 20-year period. Connect SoCal 2024 includes a vision and goals for the region. Key components include a growth forecast and regional development pattern based on population, household, and employment growth projections for the SCAG region through the year 2050 as well as a transportation network including a list of transportation projects and investments. The Plan also identifies Regional Planning Policies and Implementation Strategies that the region could pursue over the Plan horizon. Other components include financial assumptions and expenditures, key transportation investments, and an evaluation of the Plan’s performance. As part of Connect SoCal 2024, SCAG developed the Local Data Exchange (LDX) process to form the basis for the regional growth forecast. SCAG developed the LDX process to engage local partners and get information needed to fulfill state planning requirements. This included information on land use, transportation, priority development areas (PDAs), geographical boundaries, resource areas, and growth that was shared and exchanged through a combination of one-on-one meetings and data submissions with local jurisdictions. In consultation with the Technical Working Group (TWG), SCAG developed growth forecast guiding principles to ensure that the regional growth forecast yields a technically robust forecasted regional development pattern which meets its statutory objectives, which are incorporated as part of the SCS.

Although not required to do so, SCAG encourages local jurisdictions to consider the Plan’s regional vision and the policies and strategies provided in the Plan related to land use, the transportation network, Transportation Demand Management (TDM), Transportation System Management (TSM) and clean vehicle technology. More information about the Plan is included in Chapter 2, *Project Description*, of this 2024 PEIR.

This 2024 PEIR fulfills the requirements of CEQA of Connect SoCal 2024 by providing a region-wide assessment of the potential significant environmental effects of implementing the Plan. As specified in CEQA Guidelines Section 15168, a PEIR “may be prepared on a series of actions that can be characterized as one large project and are related either (1) geographically, (2) as logical parts of the chain of contemplated actions, (3) in connection with issuance of rules, regulations, plans or other general criteria to govern the conduct of a continuing program, or (4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.” A PEIR provides a regional consideration of cumulative effects and includes land use policy alternatives and program-wide mitigation measures that are capable of avoiding, reducing, and compensating for the potentially significant impacts of the Plan.

This 2024 PEIR provides a first-tier, programmatic environmental analysis, for a long-range, regional-scale plan document that will support local agencies in the evaluation of subsequent projects (including planning projects, transportation projects and development projects), and facilitate avoidance, reduction, and minimization of direct and indirect impacts, growth-inducing impacts, and cumulative environmental impacts. That is, although individual transportation projects are primarily (conceptually) identified in the Plan, this 2024 PEIR analyzes potential environmental impacts of both transportation projects and land use development from a regional perspective and is programmatic in nature.

Lead agencies for individual projects are responsible for determining the appropriate level of environmental review for subsequent project-level evaluation of individual projects. Consistent with the provisions of CEQA Guidelines Section 15050(a), the determination of the appropriate second-tier level of environmental review will be determined by the lead agency with primary discretion and decision-making authority. Where a project involves only a federal action, there will be a federal lead agency under the National Environmental Policy Act (NEPA); where there is both a federal and state/local agency action there may be individual review under NEPA and CEQA or joint federal and state/local review.

Project- and site-specific planning and implementation undertaken by each local jurisdiction/project proponent will depend on a number of issues, including policies, programs, and projects adopted at the local level; restrictions on federal, state and local transportation funds; the results of feasibility studies for particular corridors; and further environmental review of projects.

1.1 SCAG REGION AND AUTHORITY

SCAG is one of 18 MPOs in the State of California and is comprised of the following counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. To the north of the SCAG region are the counties of Kern and Inyo; to the east are the States of Nevada and Arizona; to the south is the County of San Diego as well as the U.S.-Mexico border; and to the west is the Pacific Ocean. The SCAG region also consists of 15 subregional entities that have been recognized by the Regional Council, SCAG's governing body, as partners in the regional policy planning process. According to the California Native American Heritage Commission, there are 54 California Native American tribes who are culturally affiliated with the SCAG region, 16 of which are federally recognized tribal sovereign nations located within the SCAG region (see **Appendix G, Assembly Bill 52 Consultation Summary Report**, of this 2024 PEIR).

The total area of the SCAG region is approximately 38,000 square miles. The region includes the county with the largest land area in the nation, San Bernardino County, as well as the county with the highest population in the nation, Los Angeles County. The SCAG region is home to approximately 19 million people powering the 16th largest economy in the world. The region is home to the two largest container ports in the Western Hemisphere (Los Angeles and Long Beach), and the world's fourth busiest airport system (Los Angeles World Airports).

In addition to the federal designation as an MPO, SCAG is designated under California state law as the Multicounty Designated Transportation Planning Agency and Council of Governments (COG) for the six-county region. Founded in 1965, SCAG is a Joint Powers Authority, established as a voluntary association of local governments and agencies.

SCAG serves as the regional forum for cooperative decision making by local government elected officials and its primary responsibilities in fulfillment of federal and state requirements include the development of the Plan; the

Federal Transportation Improvement Program (FTIP); the annual Overall Work Program; and transportation-related portions of local air quality management plans. SCAG's other major functions include developing the Regional Transportation Plans/Sustainable Communities Strategies and ensuring programs are in conformity with state air quality plans; periodic preparation of an RHNA; and intergovernmental review of regionally significant projects. SCAG is just one part of a large body of governments and public organizations that collectively plan, construct, operate and maintain the region's transportation system. SCAG's work helps facilitate implementation, but the agency does not directly implement or construct projects.

Currently, the Regional Council consists of 86 elected officials, representing 67 Districts that include an elected representative of one or more cities of approximately equal population levels. Membership in SCAG's Regional Council also includes representation from each county Board of Supervisors and one representative from the Southern California Native American Tribal Governments. Additionally, SCAG Bylaws provide for representation of transit interests of all of the operators and Air Districts in the region on the Regional Council and Policy Committees.

The Regional Council has general authority to conduct the affairs of SCAG and directs the actions of the agency throughout the year. Additionally, the Regional Council implements the policy direction provided at the annual General Assembly of the membership, acts upon policy recommendations from SCAG's standing policy committees and external agencies, and appoints standing or ad-hoc subcommittees to study specific programs or issues.

1.1.1 REGIONAL COOPERATION AND SUBREGIONS

SCAG places great importance on local input in the regional planning process and, therefore, seeks feedback from local elected officials and their staff through the subregional organizations that have been recognized by the Regional Council as partners in the regional policy planning process. The subregional organizations represent various parts of the SCAG region that have identified themselves as having common interests and concerns. The subregions vary according to geographical size, number of local member jurisdictions, staffing, decision-making structure, and legal status.

SCAG provides opportunities to participate in regional planning through collaboration and participation in regional programs and dialogs. Responsible for regional policy direction and review, standing committees at SCAG include the Transportation Committee, the Community, Economic and Human Development Committee, the Energy and Environment Committee, Joint Policy Committees on an as-needed basis several times a year, Emerging Technologies Committee, Special Committee on Equity and Social Justice, and Legislative/Communications and Membership Committee. In addition to the standing committees, there are various subcommittees, technical advisory committees, working groups, and task forces that report to the standing committees, while other groups are established on an ad hoc basis to assist with specific projects or address specific regional policy.

1.1.2 REGIONAL TRANSPORTATION PLAN/SUSTAINABLE COMMUNITIES STRATEGY

REGIONAL TRANSPORTATION PLAN AND FEDERAL TRANSPORTATION IMPROVEMENT PLAN

As an MPO—the largest in the nation—SCAG is responsible for developing long-range transportation plans and sustainability strategies for the region. The centerpiece of that planning work is the Regional Transportation Plan

/ Sustainable Communities Strategy (RTP/SCS) that contains both the federally required RTP and the state-required SCS (discussed below). As previously mentioned, the 2024–2050 RTP/SCS is referred to as Connect SoCal 2024.

In accordance with federal and state transportation planning laws, SCAG is required to adopt and update a long-range RTP every four years. The RTP is used to guide the development of the Federal Transportation Improvement Plan (FTIP) as well as other transportation programming documents and plans. The RTP outlines the region’s goals and policies for meeting current and future mobility needs, providing a foundation for transportation decisions by local, regional, and state officials that are ultimately aimed at achieving a coordinated and balanced transportation system. The RTP must include, among other things: the identification of transportation facilities such as roadways, transit, intermodal facilities, and connectors that function as an integrated metropolitan system over at least a 20-year forecast period; a financial plan demonstrating how the RTP can be implemented with “reasonably available” resources and additional financial approaches; strategies to improve existing facilities and relieve vehicular congestion and maximize the safety and mobility of people and goods; and environmental mitigation activities.

Transportation investments in the SCAG region that receive funding for which federal approval is required must be consistent with the Plan and must be included in SCAG’s Federal Transportation Improvement Plan when funded. The Federal Transportation Improvement Plan covers six years and is updated biennially on an even-year cycle. It represents the immediate, near-term commitments of the Plan. SCAG does not implement individual projects in the Plan, as these projects will be implemented by local and state jurisdictions, and other agencies. To continue receiving funding for which federal approval is required, the SCAG region must have an RTP with an approved transportation conformity determination in accordance with federal transportation conformity requirements, approved by the federal agencies by June 5, 2024. Chapter 2, *Project Description*, provides additional detail on Connect SoCal 2024.

MOVING AHEAD FOR PROGRESS IN THE 21ST CENTURY ACT

With the passage of the ‘Moving Ahead for Progress in the 21st Century’ (MAP-21) federal transportation authorization legislation in 2012, transportation system performance planning and monitoring also became a federal mandate (U.S. Department of Transportation, 2018). This commitment to a national performance management and reporting system was further solidified with the passage of the subsequent federal transportation authorization package (the ‘FAST Act’) in 2015. Starting with the 1998 Regional Transportation Plan, SCAG has been using quantitative performance measures to evaluate how well the RTP may achieve the regional goals established in the Plan.

Further, MAP-21 continues to require, as under prior planning law, that “a long-range transportation plan shall include a discussion of the 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” (23 USC Section 134(i)(2)(B)) (FHA, 2012). Consultation and public outreach activities have been undertaken in conjunction with the Plan and PEIR development processes.

CALIFORNIA GOVERNMENT CODE SECTION 65080

SCAG is also required to prepare an RTP pursuant to California Government Code Section 65080. The state requirements largely mirror the federal requirements and require each transportation planning agency in urban areas to adopt and submit an updated RTP to the County Transportation Commission (CTC) and the California Department of Transportation (Caltrans) every four years. To ensure a degree of statewide consistency in the development of RTPs, the CTC under Government Code Section 14522 prepared RTP Guidelines. The adopted

guidelines include a requirement for program level performance measures, which include objective criteria that reflect the goals and objectives of the RTP. In addition, the initial years of the Plan must be consistent with the Federal Transportation Improvement Plan.

SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT OF 2008

State planning law further requires, pursuant to the Sustainable Communities and Climate Protection Act of 2008, Senate Bill (SB) 375 (Chapter 728, Statutes of 2008) that an RTP include an SCS component to reduce greenhouse gas (GHG) emissions from passenger vehicles (automobiles and light-duty trucks). SB 375 is part of California's overall strategy to reach GHG emissions reduction goals required by Assembly Bill (AB) 32, in the development of regional transportation plans by metropolitan planning organizations by promoting integrated regional transportation planning with the goal of creating more sustainable communities.

Pursuant to SB 375, the SCS prepared by SCAG is required to meet reduction targets for greenhouse gas (GHG) emissions from passenger vehicles by 8 percent per capita by 2020 and 19 percent per capita by 2035 compared to 2005, as set by the California Air Resources Board (CARB). The most recent targets were established by CARB in October 2018 (CARB 2023).

According to California Government Code Section 65080(b)(2)(B), the SCS must:

- Identify existing land use.
- Identify areas to accommodate long-term housing needs.
- Identify areas to accommodate an eight-year projection of regional housing needs.
- Identify transportation needs and the planned transportation network.
- Consider resource areas and farmland.
- Consider state housing goals and objectives.
- Set forth a forecasted growth and development pattern.
- Comply with federal law for developing an RTP.

The Plan outlines SCAG's plan for attaining the SB 375-required GHG emissions reductions targets set forth by CARB, by integrating planned transportation investments, policies, and strategies with the forecasted development pattern that responds to projected growth, housing needs and changing demographics, and transportation demands.

In addition, under SB 375, after adoption of the Plan, SCAG shall submit the SCS to CARB for review. Review by CARB shall be limited to acceptance or rejection of SCAG's determination that the strategy submitted would, if implemented, meet the region's 2035 19 percent per capita GHG reduction target. Furthermore, the Act specifically states that the SCS developed as part of the RTP cannot and do not regulate local land use policies, including General Plans. Rather, the Act is intended to provide a regional policy foundation that local government may build upon if they so choose and generally includes the quantitative growth projections from each city and county in the region going forward. Qualifying projects that meet criteria established by SB 375 and are consistent with the

SCS are eligible for streamlined environmental review under CEQA.¹ See discussion under Section 1.9, *Streamlining Environmental Review*, below, for additional details.

SB 32 (Statutes of 2016, Chapter 249), extended the state's GHG reduction target under AB 32, requiring achievement of an at least 40 percent reduction from 1990 levels of GHG emissions by 2030, as initially directed by Executive Order B-30-15. Through successive scoping plan updates (see Section 3.3, *Air Quality*), CARB, the state agency tasked with furthering the state toward its long-term GHG reduction targets, provides the framework for the state to achieve its 2030 target as mandated by SB 32. The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) identifies a technologically feasible, cost-effective, and equity-focused path to achieve new targets for carbon neutrality by 2045 and to reduce anthropogenic GHG emissions to at least 85 percent below 1990 levels, while also assessing the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 (CARB, 2017). CARB identifies passenger vehicle-sourced GHGs as a sector where notable reductions are required, which can be partially achieved through implementation of the land use and transportation strategies in RTP/SCSs.

NATIONAL ENVIRONMENTAL POLICY ACT

Adoption of the Plan is solely at the discretion of SCAG's Regional Council and does not require approval by any federal agency, therefore it not subject to NEPA (Public Law 91-190). However, SCAG recognizes that lead agencies that pursue construction and operation of the transportation projects that are included in the Plan may seek federal funding; federal permits; federal approvals; or authorization to cross over lands administered by an agency of the federal government that would constitute a federal action, thus triggering the procedural provisions of NEPA. Therefore, SCAG has chosen to include a statement of purpose and need (see Chapter 2, *Project Description*) to enable proponents of individual projects included in the Plan to use this 2024 PEIR in full or in a part to serve as a functional equivalent environmental review, as appropriate, for individual projects that may involve a subsequent federal action triggering the procedural provisions of NEPA. Activities that constitute a federal action, include but are not limited to use of federal funds, right-of-way permits on federal lands, federal leases, and discretionary permits issued by federal agencies. To the extent that the proposed action is adequately characterized, analyzed, and sufficient mitigation measures have been considered to avoid or reduce the anticipated adverse direct, indirect, and cumulative effects of the proposed federal action.

1.2 PURPOSE AND SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

SCAG has prepared this 2024 PEIR to fulfill the basic purposes of CEQA (CEQA Guidelines Section 15002), which are:

- To disclose to the decision-makers and the public significant environmental effects of the proposed activities
- To identify ways to avoid or reduce environmental damage
- To prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures
- To disclose to the public reasons for agency approvals of projects with significant environmental effects

¹ CEQA streamlining provisions are also available for eligible projects meeting the criteria established by Senate Bill 226, CEQA Guidelines Section 15183.3 (Streamlining for Infill Projects) and for eligible projects meeting the criteria established by Senate Bill 743 (Steinberg, 2013), Public Resources Code Section 21155.4 (Exemptions).

- To foster interagency coordination in the review of projects
- To enhance public participation in the planning process

Although the 2024 PEIR neither controls nor anticipates the ultimate decision of approval on the Plan, SCAG (and other agencies that rely on this PEIR) must consider the information in this 2024 PEIR and make one or more written findings concerning each of those significant impacts, as identified in the 2024 PEIR (CEQA Guidelines Section 15091).

1.2.1 PROGRAMMATIC LEVEL OF ANALYSIS

The focus of the environmental analysis in the 2024 PEIR is on regional-scale impacts of Plan implementation (which are inherently cumulative as the analysis of the Plan includes a multitude of potential individual projects in the region) and the alternatives. The long-range planning horizon of more than 20 years necessitates that many of the projects included in the Plan (and the alternatives) are identified at the conceptual level. This document addresses environmental impacts to the level that they can be assessed without undue speculation (CEQA Guidelines Section 15145). This 2024 PEIR acknowledges this uncertainty and incorporates these realities into the methodology to evaluate the environmental effects of the Plan, given its long-term planning horizon.

The degree of specificity in an EIR corresponds to the degree of specificity of the underlying activity being evaluated (CEQA Guidelines Section 15146). Drafting an EIR [...] necessarily involves some degree of forecasting (CEQA Guidelines Section 15144). While forecasting the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that *it reasonably can* (*emphasis added*). While lead agencies must use their best efforts to find out and disclose all that they reasonably can about a project's potentially significant environmental impacts, they are not required to predict the future or foresee the unforeseeable (CEQA Guidelines Section 15144). The adequacy of an EIR is determined in terms of what is reasonably feasible, in light of factors such as the magnitude of the project at issue, the severity of its likely environmental impacts, and the geographic scope of the project (CEQA Guidelines Sections 15151, 15204(a)). While the environmental analysis should consider a reasonable range of environmental, economic, and technical factors, an agency is not required to engage in speculation or conjecture and may choose to utilize numerical ranges and averages where specific data is not available (CEQA Guidelines Section 15187). The activity being evaluated in this 2024 PEIR is the long-term RTP including the SCS. This 2024 PEIR strives to provide as much quantitative detail as feasible regarding the regional environmental impacts of the Plan. Not all impacts can be feasibly and/or accurately quantitatively analyzed at a regional level and/or up to the year 2050.

The geographic scope, consisting of over 38,000 square miles, and complexity represented by the diverse needs of six counties, 15 subregional areas, 191 cities, and 16 federally recognized tribes that comprise the SCAG region, that are addressed by the Plan, played an important role in determining the appropriate level of detail to include in this 2024 PEIR.

Potential significant environmental effects of the Plan were identified by employing multiple analytical methods, including 1) spatial analysis, 2) transportation, land use, and air quality modeling and 3) other quantitative, ordinal, and qualitative techniques. Transportation and air quality simulation models were used to estimate the transportation, air quality, and GHG impacts. Transportation projects, anticipated growth distribution pattern, and policies and strategies of the Plan and alternatives were incorporated into the modeling analysis and the socioeconomic projections.

1.2.2 LIMITATIONS ON THE SCOPE OF ANALYSIS

While this 2024 PEIR analyzes potential impacts from the Plan utilizing available sources of data and models, SCAG recognizes that there are limitations on the scope of analysis for the 2024 PEIR. For example, assessing the effects of global climate change impacts from regional GHG emissions is well beyond the scale of any other types of impacts considered under CEQA, such as regional conditions relating to air basins, streams or watersheds, or localized conditions such as cultural and biological resources. The global consequences of regional GHG emissions are also dependent on a wide range of factors such as the willingness of federal, state, regional and local governments in the United States and worldwide to adopt or implement meaningful measures to reduce their own GHG emissions; the development and deployment of technologies that reduce GHG emissions; and the many factors that affect the pricing and availability of fuels that result in GHG emissions such as global conflict and taxes. On the other end of the CEQA analytical spectrum, many CEQA thresholds in most topical areas relate to localized environmental conditions and Plan impacts, such as:

- Aesthetics (e.g., degradation of existing visual character of the site and/or creation of new sources of light or glare that affect day or nighttime views)
- Air Quality (e.g., localized air pollutant and toxics effects from construction)
- Agriculture and Forestry Resources (e.g., loss of farmland of local importance)
- Biological Resources (e.g., conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance)
- Cultural Resources (e.g., impacts to individual historical resources)
- Energy (e.g., inefficient use of energy)
- Geology and Soils (e.g., exacerbating, or making soil conditions more unstable)
- Hazards and Hazardous Materials (e.g., exacerbating existing hazards)
- Hydrology and Water quality (e.g., provide substantial additional sources of polluted runoff)
- Land use (e.g., conflict with adopted land use plans such as General Plans and zoning codes)
- Mineral Resources (e.g., loss of known mineral resources)
- Noise (e.g., cause a substantial permanent or temporary increase in ambient noise above preexisting levels)
- Population and Housing (e.g., induce substantial population growth in an area, or displace substantial numbers of people and/or housing units)
- Public Services (e.g., cause a need for new or physically altered physical facilities to maintain acceptable service ratios for fire, police, schools, and other public services, the construction of which could cause impacts)
- Recreation (e.g., result in an increase in the use of existing neighborhood and regional parks resulting in a need for new parks, the construction of which could cause impacts)
- Transportation (e.g., conflict with applicable plans or standards for roadway effective performance metrics or conflict with a congestion management plan designed to achieve effective traffic flow)
- Tribal Cultural Resources (e.g., cause substantial adverse change in the significance of a tribal cultural resource)
- Utilities and Service Systems (e.g., require the construction of facilities, the construction of which would cause significant impacts)

- Wildfire (e.g., expose people to wildfire risk)

These and other examples of CEQA thresholds are aimed at protecting the local environment in which projects occur and demonstrating to the public that it is being protected. At the regional scale of the Plan and in this 2024 PEIR, it is difficult to identify with specificity any of these impacts. Nonetheless, each impact category is analyzed in light of Plan components to determine the potential for significance.

1.3 BASELINE FOR DETERMINING SIGNIFICANCE AND THRESHOLDS OF SIGNIFICANCE

The 2024 PEIR must identify significant impacts that would be expected to result from implementation of the Plan. Significant impacts are defined as a “substantial or potentially substantial, adverse change in the environment” (Public Resources Code Section 21068). Significant impacts must be determined by applying explicit significance criteria, and the examination should normally be limited to changes in the existing physical conditions from comparing the future Plan conditions to the existing environmental setting (CEQA Guidelines Section 15126.2(a)). The existing setting is described in detail in each resource section of Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, of this document, and represents the most recent, reliable, and representative data to describe current regional conditions at the time of publication of the NOP for the 2024 PEIR, October 17, 2022. In most instances, the most recent reliable data was for 2019, prior to the onset of the COVID-19 global pandemic and associated effects on vehicle miles traveled, individual activity patterns and travel behavior, goods movement, work-at-home practices, and other related changes to regional-scale activities. For population, land use, and modeling analyses (air quality, energy, greenhouse gas emissions, and transportation), base year information is collected every four years as part of the Plan. The base year for the Plan is 2019. It should be noted that for some topic areas (such as agriculture and forestry resources, hydrology and water quality, and utilities and service systems) resources, facilities, or conditions were not notably affected by pandemic-related societal changes or relevant trends have emerged or continued since 2019 conditions. Where appropriate and identified throughout this 2024 PEIR, the environmental and regulatory settings of various resource areas have used more recent data to better characterize baseline conditions. Or, conversely, where data were unavailable for 2019 or a more recent year, the most recent data were used (typically 2022). See the *Methodology* section for each resource area in Chapter 3 of this document for an additional discussion of data used to characterize environmental and regulatory settings for each resource topic. See further discussion of the 2024 PEIR baseline in Section 3.0, *Introduction to the Analysis*.

CEQA gives the lead agency the responsibility to determine whether an adverse environmental effect identified in an EIR should be classified as “significant” or “less than significant” (CEQA Guidelines Section 15064(b)). Under Section 15064(b), “the significance of an activity may vary with the setting” and, as a result, an inflexible definition of what constitutes a significant effect is not always possible. The lead agency has discretion to set its own significance criteria, which requires the lead agency to make a policy judgment about how to distinguish impacts which are adverse, but significant, from impacts which are adverse, but not significant (*Eureka Citizens for Responsible Gov’t v. City of Eureka* (2007) 147 Cal.App.4th 357). A lead agency may select a standard of significance based on its judgment about an appropriate standard of significance (*Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 541). The standards of significance used in an EIR may also rely upon policies adopted and implemented by the lead agency (*Mira Mar Mobile Community v. City of Oceanside* (2004) 119 Cal.App.4th 477). The criteria for determining significance are included in each resource section in Chapter 3 of this 2024 PEIR.

1.4 CONSIDERATION OF REGIONAL POPULATION GROWTH AND PATTERN OF GROWTH

It is important to emphasize that population growth and urbanization in the SCAG region will increase substantially by 2050, with or without implementation of the Plan.

The analysis assumes all the changes in land use and transportation within the region between 2019 and 2050 are attributed to the Plan known at the time of preparing this PEIR. This is because at the regional scale, it is difficult to parse out the effects of the Plan as compared to effects that would occur without the Plan (although evaluation of the No Project Alternative is provided in Chapter 4, *Alternatives*). Moreover, because locations, densities, implementation timing, and other site-unique factors related to development are not specified in the Plan, SCAG cannot quantify the specific impacts. Uncertainties from a number of external factors (including energy and water efficiency requirements, air emission standards, etc.) may also affect the analyses. SCAG therefore programmatically analyzes regional impacts and provides a selection of mitigation measures to address impacts based on reasonable assumptions regarding transportation projects and growth and conservative assumptions regarding parameters that affect impacts.

As required by CEQA, Chapter 3 of this document provides a direct comparison for each resource category between the expected future conditions with the Plan and the baseline conditions. Chapter 4, *Alternatives*, includes an analysis of alternate growth distribution patterns (continuation of existing development patterns in the No Project Alternative and a denser land use pattern under the Intensified Land Use Alternative).

1.5 PLAN ALTERNATIVES

When considering whether or not the range of alternatives to be evaluated in an EIR is adequate, several principles apply. The “discussion of alternatives need not be exhaustive,” and the requirement to discuss alternatives is “subject to a construction of reasonableness” (*Residents Ad Hoc Stadium Committee v. Board of Trustees* [1979] 89 Cal.App.3d 274, 286). “An EIR need not consider every conceivable alternative to a project” (CEQA Guidelines Section 15126.6(a)).

Under CEQA, perfection is not the standard governing a lead agency's proposed range of project alternatives. Rather, in preparing an EIR, a lead agency must make an objective, good faith effort to provide information permitting a reasonable choice of alternatives that would feasibly attain most of the basic objectives of the project, while avoiding or substantially lessening the project's significant adverse environmental impacts (*California Oak Foundation v. Regents of University of California* [2010] 188 Cal.App.4th 227, 275–276).

CEQA Guidelines Section 15126.6(d) requires an EIR to include sufficient information about each alternative in order to allow meaningful evaluation, analysis, and comparison with the proposed project. They suggest the use of a matrix displaying each alternative's significant environmental effects to summarize the comparison (see Chapter 4, *Alternatives*). When a large-scale program contains multiple, interrelated objectives, an alternative that does not meet all of those objectives may be excluded from detailed analysis (see *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* [2008] 43 Cal. 4th 1143, 1162–1168). An EIR must discuss alternatives to a project in its entirety but is not required to discuss alternatives to each particular component of a project (see *California Oak Foundation v. Regents of University of California* [2010] 188 Cal.App.4th 227, 276–277). CEQA does not require an EIR to consider multiple variations on the alternatives analyzed. “What is required is the production of information sufficient to permit a reasonable choice of alternatives so far as environmental

aspects are concerned" (*Village Laguna of Laguna Beach, Inc. v. 21 Board of Supervisors of Orange County* [1982] 134 Cal.App.3d 1022).

This 2024 PEIR provides two "book-end" alternatives to capture the range of potential environmental impacts associated with the selected alternatives to the Plan and a framework for understanding the greatest potential impacts when compared to the Plan. The Plan and each alternative maintain a constant total for population, households, and jobs for the region in 2050. The year 2050 growth projections for each alternative differ only in the distribution of growth.

The comparative analysis of the expected future conditions with the Plan and if no Plan were adopted (the No Project Alternative) is discussed in Chapter 4, *Alternatives*, of this 2024 PEIR. Specifically, Chapter 4 describes and analyzes the following two selected alternatives:

- **No Project Alternative.** The No Project Alternative is required by CEQA Guidelines Section 15126.6(e)(2) and assumes that the Plan would not be approved. It assumes what would occur if the Plan were not approved. For purposes of this document, it is the continued implementation of goals and policies in the region of the adopted 2020 RTP/SCS. The No Project Alternative includes only those transportation projects that are in the first year of the previously conforming FTIP (i.e., the 2023 FTIP; FY2022/2023). The growth included in the No Project Alternative has the same regional and county totals for population, housing, and employment as those in the Plan developed as part of SCAG's county and regional growth forecast process in consultation with the Demographic Panel of Experts, and subsequently reviewed by local jurisdictions.
- **Intensified Land Use Alternative.** The Intensified Land Use Alternative is based on the Plan's transportation network and strategies. The land use pattern builds on the land use strategies as described in Connect SoCal 2024. Specifically, it increases densities and intensifies land use patterns of the Plan, especially around PDAs to maximize transit opportunities. The growth pattern associated with this alternative optimizes urban areas and suburban town centers, transit-oriented developments (TODs), HQTCS, livable corridors, and neighborhood mobility areas. It also includes a greater progressive job-housing distribution optimized for TODs and infill in PDAs. The growth included in the Intensified Land Use Alternative has the same regional and county totals for population, housing, and employment as those in the Plan developed as part of SCAG's county and regional growth forecast process in consultation with the Demographic Panel of Experts, and subsequently reviewed by local jurisdictions.

1.6 MITIGATION MEASURES

CEQA requires that SCAG identify all feasible mitigation measures in the 2024 PEIR that would avoid or substantially lessen the significant environmental effects of the project. CEQA, however, does not require a lead agency to undertake identified mitigation measures, even if those measures are necessary to address a project's significant environmental effects, if the agency finds that the measures "are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency" *City of Marina v. Bd. of Trustees of the Calif. State Univ.* (2006) 39 Cal.App.4th 341, 366; see also *Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.App.4th 439. Under these circumstances, the lead agency may find that the measures "can and should" be implemented by the other agency or agencies said to have exclusive responsibility/jurisdiction over the measures (*City of Marina*, 39 Cal.App.4th at 366). As the CEQA Guidelines explain, the "finding in subsection (a)(2) shall not be made if the agency making the finding has concurrent jurisdiction with another agency to deal with identified feasible mitigation measures or alternatives."

Furthermore, SB 375 specifically provides that nothing in an SCS supersedes the land use authority of local jurisdictions, and that local jurisdictions 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. Moreover, local jurisdictions have plenary authority to regulate land use through their police powers granted by California Constitution Article XI, Section 7, and under several statutes, including the local planning law, the zoning law, and the Subdivision Map Act. As such, SCAG has no concurrent land use authority or jurisdiction to implement mitigation related to land use plans and projects that implement the Plan. With respect to the transportation projects included in the Plan, 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. SCAG also has no authority or jurisdiction to require these agencies to implement project-specific mitigation measures.

CEQA case law also held that deferral of the specifics of mitigation is permissible where the lead agency commits itself to mitigation and, in the mitigation measure, either describes performance standards to be met in future mitigation or provides a menu of alternative mitigation measures to be selected from in the future (*California Native Plant Society v. City of Rancho Cordova* [2009] 172 Cal.App.4th 603 [the details of exactly how the required mitigation and its performance standards will be achieved can be deferred pending completion of a future study]; *Endangered Habitats League Inc. v. County of Orange* [2005] 131 Cal.App.4th 777, 793 [deferred mitigation acceptable when performance standards are included]; *Riverwatch v. County of San Diego* (1999) 76 Cal.App.4th 1428, 1448–1450 [a deferred approach may be appropriate where it is not reasonably practical or feasible to provide a more complete analysis before approval and the EIR otherwise provides adequate information of the project's impacts]; *Sacramento Old City Assn. v. City Council of Sacramento*, supra, 229 Cal.App.3d at 1028–1029 [deferral of agency's selection among several alternatives based on performance criteria was appropriate]).² CEQA Guidelines Section 15126.4(a)(1)(B) provides:

"Formulation of mitigation should not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will be considered, analyzed, and potentially incorporated in the mitigation measure"

Moreover, with respect to greenhouse gas emissions in the case of adoption of a plan to reduce greenhouse gas emission (i.e., the RTP/SCS):

"mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions."

Mitigation measures should reflect the level of detail appropriate to the EIR being prepared. (See, e.g., *Koster v. County of San Joaquin* (1996) 47 Cal.App.4th 29; provides that a first-tier EIR may contain generalized mitigation

² Note that in litigation challenging SANDAG's adoption of its 2050 Regional Transportation Plan/Sustainable Communities Strategy, the California Court of Appeal found that "[a]n EIR may not defer the formulation of mitigation measures to a future time, but mitigation measures may specify performance standards which would mitigate the project's significant effects and may be accomplished in more than one specified way." *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2014) 231 Cal. App. 4th 1056, 1089 (partially reversed on other grounds by *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497).

criteria). In this case, the 2024 PEIR addresses a large-scale region with a variety of projects spread over more than 20 years. As such, this 2024 PEIR identifies program-wide mitigation measures for implementation by SCAG.

In addition, the 2024 PEIR identifies project-level mitigation measures for lead agencies to consider which they “can and should” adopt, as applicable and feasible, in subsequent project-specific design, CEQA review, and decision-making processes. (See CEQA Guidelines Section 15091(a)(2)). Lead agencies may also identify other comparable measures capable of reducing impacts below the specified threshold. It is ultimately up to the lead agency to determine the appropriateness of the mitigation measure based on project-specific circumstances. As appropriate and authorized by the CEQA Guidelines and case law, the program-wide mitigation measures included in this 2024 PEIR are less detailed than those that would be part of a project EIR, and the selection of detailed mitigation measures is properly deferred to future project-specific CEQA reviews. For the purposes of this PEIR, it is assumed that each lead agency for specific projects would have the ability to impose and enforce these measures (i.e., that the measures will be implemented). However, given the size and diversity of conditions and projects in the region, it is reasonably foreseeable that for some projects’ impacts would remain significant and unavoidable even after implementation of all feasible mitigation measures.

For projects proposing to streamline environmental review under SB 375 or for projects otherwise tiering off this 2024 PEIR, the project-level mitigation measures described in this 2024 PEIR (or comparable measures) can and should be considered and implemented by lead agencies (and project sponsors) during the subsequent, project- or site-specific environmental reviews for transportation and development projects as applicable and feasible. However, SCAG cannot and does not require lead agencies to adopt mitigation, and it is ultimately the responsibility of the lead agency to determine and adopt project-specific mitigation as appropriate and feasible for each project.

The SCAG level and project-level mitigation measures referenced in this 2024 PEIR recognize the limits of SCAG’s authority; distinguish between SCAG commitments and project-level responsibilities and authorities; optimize flexibility for project implementation; and facilitate CEQA streamlining and tiering where appropriate on a project-by-project basis determined by each lead agency.³ See further discussion of Plan Features that May Reduce Impacts, Compliance with Laws and Regulations and Mitigation Measures in Section 3.0, *Introduction to the Analysis*.

1.7 PUBLIC PARTICIPATION FOR THE PLAN

The Plan was developed with input from the public in accordance with the adopted 2022 Public Participation Plan. SCAG recognizes the need for early engagement during the development of Connect SoCal 2024. For members of the public, SCAG hosted 20 in-person and seven virtual workshops on the Plan in spring of 2023 (SCAG, 2022b). SCAG developed specific outreach goals this cycle to move the region toward equity and resilience, promote a planning vision that recognizes the region as a whole, and provides context to educate the public about the challenges SCAG faces and the strategies to overcome them. To help further inform local, state and federal

³ Note that compliance with existing regulations, such as the Uniform Building Code and California Building Code, is not considered mitigation because compliance is already required regardless of whether an impact is found to be significant or not by the CEQA analysis. However, such regulations do reduce environmental impacts and are identified in the Regulatory Framework and discussed in impact analyses where appropriate, to provide additional information on the how potential impacts are reduced. In some cases, regulatory compliance may be sufficient to reduce impacts to a level of less than significance, however, given the size and scale of the region and diversity of projects many impacts are conservatively identified as significant and mitigation measures are identified to provide options for lead agencies such that impacts may be reduced to a level of less than significant level where feasible or reduced to the maximum extent feasible where impacts have the potential to be significant.

agencies, and other interested parties about the elements of the Draft Plan, SCAG posted announcements and videos on its website, blog sites, and its social media platforms; prepared digital ads in English, Spanish, Chinese, Korean and Vietnamese; placed billboard and transit shelter ads; ran Radio ads; and placed ads in 10 print newspaper outlets for Black audiences and in-language preferred speakers of Spanish, Chinese, Korean and Vietnamese. In addition, the ongoing engagement with stakeholders through SCAG’s working group and technical advisory committees, were incorporated in the development of the Plan.

The Draft Plan was authorized for release by the Regional Council for a public comment and review period commencing November 2, 2023 and concluding January 12, 2024. SCAG engages in additional public participation activities during the public review and comment period on the Draft Plan. Public hearings on the Draft Connect SoCal 2024 are held during the public review and comment period. The hearings are held both in-person and virtually via Zoom and are noticed in numerous newspapers throughout the region. The notice are published in English, Spanish, Korean, Chinese, and Vietnamese languages. The Draft Connect SoCal 2024 are posted on the SCAG website and virtually distributed to libraries throughout the region, and physically distributed to libraries upon request.

During public review and comment period for the Draft Plan, SCAG holds public workshops related to the Plan. Although the informational workshops are tailored to public officials and agency representatives, they are open to the public, and time are allowed for public comment. SCAG conducts additional outreach activities, as appropriate, to the business community, ethnic groups, Native American tribes, and other stakeholders during the public review period, as needed.

With the release of the Draft Plan, SCAG makes available the interactive Plan website that provides for easy navigation through the various sections of the Plan and allows visitors to submit comments through the online form. In addition to the online forum, SCAG accepts public input through mailings and at public workshops.

Plan comments related to the PEIR received during the public review period of the Draft Plan are considered and addressed in SCAG’s response to comments and included in the Final PEIR document.

1.8 PUBLIC PARTICIPATION AND CONSULTATION FOR THE 2024 PEIR

1.8.1 NOTICE OF PREPARATION AND DETERMINATION OF SCOPE OF 2024 PEIR

Pursuant to Public Resources Code Section 21080.4 and CEQA Guidelines Sections 15082 and 15375, the NOP for the Plan was released on October 17, 2022, and circulated for a 30-day comment period ending November 16, 2022. SCAG hosted two virtual scoping meetings on November 9, 2022, at 6 p.m. to 8 p.m., and on November 10, 2022, at 10:00 am to 12:00 pm.

The NOP was filed with the State Clearinghouse on October 17, 2022; posted with the County Clerks for the six counties in the SCAG region; and distributed to various federal, state, regional and local government agencies,

and other interested agencies, organizations, and individuals. The NOP was made available on SCAG’s website at <https://scag.ca.gov/sites/main/files/file-attachments/nop-draft-peir-connect-social-2024.pdf?1666036242>.

A summary of the NOP was translated to English, Spanish, Korean, Chinese, and Vietnamese languages and published in twelve newspapers, including the Los Angeles Times, and additional newspapers that address the large geographic reach and diverse population within the SCAG region:

- Desert Sun
- Imperial Valley Press
- La Opinion
- Los Angeles Sentinel
- Los Angeles Times
- Nguoi Viet
- The Press Enterprise
- San Bernardino County Sun
- The Korea Times
- The Orange County Register
- Ventura County Star
- World Journal (Chinese Daily News)

The NOP was circulated primarily using electronic mail to over 4,000 interested parties, including representatives of Native American tribes. The NOP was mailed directly to 137 interested parties, including federal, state, regional and local agencies, organizations and major libraries in the region using the U.S. Postal Service certified mail service. The NOP was also posted at the following locations:

SCAG Main Office

900 Wilshire Boulevard, Suite 1700
Los Angeles, CA 90017

SCAG San Bernardino County Regional Office

1170 West 3rd Street, Suite 140
San Bernardino, CA 92410

SCAG Riverside County Regional Office

3403 10th Street, Suite 805
Riverside, CA 92501

SCAG Orange County Regional Office

600 South Main Street, Suite 741
Orange, CA 92868

SCAG Imperial County Regional Office

1503 N. Imperial Avenue, Suite 104
El Centro, CA 92243

SCAG Ventura County Regional Office

4001 Mission Oaks Boulevard, Suite L
Camarillo, CA 93012

The NOP provided notification of the two public scoping meetings for interested parties to receive information on the Plan and the related CEQA process as well as providing an opportunity for providing comments both by mail and electronically and at the public scoping meetings.

SCAG received 16 comment letters (including two comment letters received after close of the public comment period) in response to the NOP and seven verbal comments at the public NOP scoping meetings. A breakdown of NOP commenters is listed in **Table 1-1, Summary of NOP Commenters**, below.

Both PEIR and Plan topics were raised by the commenters on the NOP. SCAG received 50 individual comments related to the PEIR and 30 individual comments on the Plan. A breakdown of the NOP comments by PEIR and Plan topic areas is presented below in **Table 1-2, Summary of NOP Comments by Topic Areas**. The NOP and comments received on the NOP are included in **Appendix A** to this 2024 PEIR.

TABLE 1-1 Summary of NOP Commenters

COMMENTERS	NUMBER
Sovereign Nation	1
State Agency	4
Regional Agency	2
Local Agency (SCAG Member Jurisdiction)	4
Other Interested Organization and Individuals	12

TABLE 1-2 Summary of NOP Comments by Topic Areas*

	TOPIC AREAS	NUMBER
PEIR	Project Description	7
	Air Quality	2
	Biological Resources	1
	Cultural Resources	2
	Greenhouse Gas Emissions	4
	Hydrology and Water Quality	1
	Population and Housing	3
	Recreation	3
	Transportation	4
	Tribal Cultural Resources	2
	Utilities and Service Systems	2
	Wildfire	1
	Mitigation Measures	7
	Alternatives	5
	PEIR Development Process	4
	Findings of Fact/Statement of Overriding Considerations	1
	Plan (Connect SoCal 2024)	Plan Requirements
Plan Development Process		3
Plan Goals and Performance Measures		4
Transportation Planning		5
Transportation Conformity		2
Forecasted Regional Development Pattern		8
Climate and Resilience		4
Data	2	

Table Notes:

* Table 1-2 does not include comments from the California Coastal Commission in the breakdown because their comments, which were submitted to SCAG on November 16, 2022, were dated February 21, 2019, in response to the NOP of Connect SoCal 2020 (2020 RTP/SCS) PEIR (State Clearinghouse No.: 2019011061).

The scope and content of the 2024 PEIR were developed with consideration of the comments received in response to the NOP. Appendix A of the 2024 PEIR includes a copy of the NOP and written comments received in responses to the NOP.

1.8.2 TRIBAL CONSULTATION

On October 13, 2022, PEIR staff requested a list from the California Native American Heritage Commission (NAHC) of California Native American tribes that are traditionally and culturally affiliated with the geographic area of the Plan. SCAG staff initiated the tribal consultation process on October 27, 2022, by sending Tribal Consultation Initiation letters to all of SCAG’s tribal contacts within the 15 days of the release of the NOP, as required by Assembly Bill 52 (AB 52; Gatto). Additional letters were sent on December 14, 2022, and December 20, 2022, upon receipt of the tribal contacts list from the NAHC. In total, staff contacted 64 tribal contacts and 54 tribes in the SCAG region. The AB 52 tribal consultation concluded on January 20, 2023, with no requests for consultation. See Section 3.18, *Tribal Cultural Resources*, and Appendix G, of this PEIR for additional details.

1.8.3 ADDITIONAL PUBLIC PARTICIPATION AND STAKEHOLDER OUTREACH

To further advance outreach efforts for this 2024 PEIR, SCAG staff leverages its existing Technical Advisory Committees, Working Groups, and Policy Committees. These forums assist SCAG staff in facilitating stakeholder engagement in the development and implementation of plans and policies, including the 2024 PEIR. Members and attendees include elected officials and other representatives from the business/development sector; the environmental sector; local jurisdictions; resource agencies; and the public.

In addition, SCAG PEIR staff conducts targeted outreach to key stakeholders by topics specific to the PEIR. For example, PEIR staff reached out to representatives of all five air districts in the SCAG region to discuss the preliminary approach to 2024 PEIR’s air quality and GHG sections. Two one-and-one meetings were coordinated with CEQA staff from the South Coast Air Quality Management District and Ventura County Air Pollution Control District through this effort, as detailed in Table 1-3. When appropriate, staff has also coordinated meetings with public agencies and other interested stakeholders to hold specific PEIR related discussions, upon request. The content for targeted outreach was tailored to the specific interests of the stakeholders.

Public participation and stakeholder outreach efforts for the 2024 PEIR are presented in **Table 1-3, 2024 PEIR Public Participation and Stakeholder Outreach**, below.

TABLE 1-3 2024 PEIR Public Participation and Stakeholder Outreach^a

DATE	FORUM	STAKEHOLDER REPRESENTATIVES	TOPICS COVERED
March 3, 2022	Energy and Environment Committee	Elected Officials, Interested Stakeholders, General Public	Connect SoCal 2024 PEIR 101
September 1, 2022	Energy and Environment Committee	Elected Officials, Interested Stakeholders, General Public	CEQA Initiation for the Connect SoCal 2024 PEIR
October 6, 2022	Energy and Environment Committee	Elected Officials, Interested Stakeholders, General Public	Request to Release Connect SoCal 2024 PEIR Notice of Preparation
October 10, 2022	Global & Land Use Economic Counsel	Business; General Public	Release of the NOP

DATE	FORUM	STAKEHOLDER REPRESENTATIVES	TOPICS COVERED
October 31, 2022	Aviation Technical Advisory Committee	Aviation and Airports	Status Update on the 2024 PEIR Aviation Technical Report
November 9, 2022	2024 Draft PEIR NOP Scoping Meeting #1	Business; Environmental; Public Agencies; General Public	Connect SoCal 2024 Project and 2024 PEIR Overview
November 10, 2022	2024 Draft PEIR NOP Scoping Meeting #2	Business; Environmental; Public Agencies; General Public	Connect SoCal 2024 Project and 2024 PEIR Overview
January 4, 2023	Western Riverside County Regional Conservation Authority / Riverside County Transportation Commission	Public Agencies	Conservation
February 2, 2023	Energy and Environment Committee	Elected Officials, Interested Stakeholders, General Public	2024 PEIR Status Update on NOP Comments
February 16, 2023	Joint Sustainable and Resilient Communities/ Natural and Farm Lands Conservation	Environmental; General Public	2024 PEIR Overview & Status Update, Recap on NOP Comments, and Preliminary Approach to Biological Resources Impact Analysis
March 8, 2023	South Coast Air Quality Management District	Air Districts	2024 PEIR Overview, Preliminary Technical Methodology for Air Quality and GHG Impacts Analyses
March 13, 2023	City of Riverside	Public Agencies	Transportation Impacts Analysis
March 14, 2023	Ventura County Air Pollution Control District	Air Districts	2024 PEIR Overview, Preliminary Technical Methodology for Air Quality and GHG Impacts Analyses
March 16, 2023	Technical Working Group	Business; Environmental; Public Agencies; General Public	2024 PEIR Status Update and Major Components
April 3, 2023	Global & Land Use Economic Counsel	Business; General Public	2024 PEIR Status Update
April 6, 2023	Energy and Environment Committee	Elected Officials, Interested Stakeholders, General Public	Status Update on Additional Stakeholder Outreach and Highlights of Preliminary Approaches to Major Components
April 27, 2023	Ventura County Air Pollution Control District	Air Districts	2024 PEIR Overview, Preliminary Technical Methodology for Air Quality and GHG Impacts Analyses
May 24, 2023	South Coast Air Quality Management District	Air Districts	2024 PEIR Overview and Equity
June 23, 2023	South Coast Air Quality Management District	Air Districts	2024 PEIR Overview and Equity
July 6, 2023	Energy and Environment Committee	Elected Officials, Interested Stakeholders, General Public	Status Update on Additional Stakeholder Outreach and Preliminary Outline of Draft Contents

DATE	FORUM	STAKEHOLDER REPRESENTATIVES	TOPICS COVERED
July 18, 2023	Technical Working Group	Business; Environmental; Public Agencies; General Public	Preliminary Outline of Draft Contents
August 24, 2023	Joint Sustainable and Resilient Communities / Natural and Farm Lands Conservation Working Groups (Joint Meeting)	Elected Officials, Interested Stakeholders, General Public	Status Update on Major Outreach, Approaches to Major Components and Outline of Draft Contents
September 7, 2023	Joint Regional Council and Policy Committee ^b	Elected Officials, Interested Stakeholders, General Public	CEQA Requirements and 2024 PEIR Status Update
September 21, 2023	Technical Working Group	Business; Environmental; Public Agencies; General Public	Status Update on Development, Major Components and Outline of Contents of the 2024 Draft PEIR
November 2, 2023	Energy and Environment Committee	Elected Officials, Interested Stakeholders, General Public	Recommendation that Regional Council Approve Release of Connect SoCal 2024 Draft PEIR for public review and comment
November 2, 2023	Regional Council	Elected Officials, Interested Stakeholders, General Public	Consideration to Approve Release of Connect SoCal 2024 Draft PEIR for public review and comment

Table notes:

- a. Updated in November 2023.
- b. The 2024 PEIR was highlighted and included in the staff report and presentation to the Joint Meeting of SCAG Regional Council and Policy Committees on September 7, 2023.

1.8.4 PUBLIC COMMENT PERIOD FOR THE 2024 DRAFT PEIR

Pursuant to SCAG Regional Council’s authorization, the 2024 Draft PEIR was released for a 65-day public comment and review period beginning November 9, 2023 and ending January 12, 2024. The 2024 Draft PEIR document was published on SCAG’s website at <https://scag.ca.gov/peir>.

The Notice of Availability (NOA) for the 2024 Draft PEIR, which includes a link to the 2024 Draft PEIR document, was filed with the State Clearinghouse on November 9, 2023; posted with the County Clerks for the six counties in the SCAG region; and distributed to various federal, state, regional and local government agencies, and other interested agencies, organizations, and individuals.

A summary of the NOA was translated to English, Spanish, Korean, Chinese, and Vietnamese languages and published in 13 newspapers, including the Los Angeles Times, and additional newspapers that address the large geographic reach and diverse population within the SCAG region:

- Antelope Valley Press
- Desert Sun
- Imperial Valley Press
- The Press Enterprise
- San Bernardino County Sun
- The Korea Times

- La Opinion
- Los Angeles Sentinel
- Los Angeles Times
- Nguoi Viet
- The Orange County Register
- Ventura County Star
- World Journal (Chinese Daily News)

The NOA and 2024 Draft PEIR were circulated primarily using electronic mail to over 4,000 interested parties, including representatives of Native American tribes. The NOA was mailed directly to over 200 interested parties, including federal, state, regional and local agencies, organizations, tribal contacts, and major libraries in the region using the U.S. Postal Service certified mail service. Major libraries also received translated copies of the NOA summary in four languages for posting.

Hard copies of the NOA and 2024 Draft PEIR are also available at the following locations:

SCAG Main Office

900 Wilshire Boulevard, Suite 1700
Los Angeles, CA 90017

SCAG San Bernardino County Regional Office

1170 West 3rd Street, Suite 140
San Bernardino, CA 92410

SCAG Riverside County Regional Office

3403 10th Street, Suite 805
Riverside, CA 92501

SCAG Orange County Regional Office

600 South Main Street, Suite 741
Orange, CA 92868

SCAG Imperial County Regional Office

1503 N. Imperial Avenue, Suite 104
El Centro, CA 92243

SCAG Ventura County Regional Office

4001 Mission Oaks Boulevard, Suite L
Camarillo, CA 93012

Written comments on this 2024 Draft PEIR will be accepted no later than 5:00 p.m. (Pacific Standard Time) on January 12, 2024. This is a separate but parallel public comment period from the one for the Draft Plan, which ends on the same date.

To submit comments on this 2024 Draft PEIR, please write your comments to Ms. Karen Calderon via email (preferred method) at ConnectSoCalPEIR@scag.ca.gov or by standard mail to the following address:

Southern California Association of Governments
Attn: Ms. Karen Calderon
900 Wilshire Boulevard, Suite 1700
Los Angeles, CA 90017

Written CEQA comments provided by interested parties on the 2024 Draft PEIR are evaluated, responded to, and incorporated into Chapter 9, *Response to Comments*, in the Final PEIR. The 2024 Final PEIR will be provided to the SCAG Regional Council for consideration for certification as part of the decision-making process prior to consideration and action undertaken by the Regional Council for Connect SoCal 2024.

1.9 STREAMLINING ENVIRONMENTAL REVIEW

CEQA has provisions and tools that streamline the environmental review process for qualifying projects. CEQA streamlining provisions are often narrow and may include exceptions. Although SCAG has no land use authority

and does not implement nor approve land use development, Connect SoCal 2024 (specifically the SCS portion) provides pathways to streamline CEQA review for land use development that qualify as Transit Priority Projects (TPPs) or Residential/Mixed-Use Projects (as defined in SB 375). Specifically, SB 375 allows for streamlined review and analysis through an expedited Sustainable Communities Environmental Assessment (SCEA) for TPPs that are consistent with the SCS; and a complete CEQA exemption for TPPs that are consistent with the SCS and meet a specific list of other requirements. Furthermore, SB 743 and SB 226 provide additional CEQA streamlining provisions for certain projects (e.g., projects in transit priority areas and infill development projects). Infill and transit-oriented development projects at the local levels, in particular, can proceed faster through the entitlement and environmental processes by relying on regional project CEQA approvals. Having a certified RTP/SCS PEIR allows for “tiering” for subsequent, individual projects.

SCAG has developed resources that provide background and a summary of the different types of streamlining available and how eligibility is determined for housing development that may be useful for other types of land use development. These resources may be used at their discretion by agencies and other entities serving as CEQA lead agencies for individual projects. These resources do not alter these agencies’ discretions in decision-making, independent judgment and analysis, and preparing environmental documents for their projects or governmental actions subject to CEQA requirements. These resources are for general information only and provided in the following:

- [What is CEQA Streamlining?](#)
- [Senate Bill 375: CEQA Streamlining](#)
- [CEQA Streamlining Options for Non-Exempt Housing Projects Covered by an Existing EIR: Project Eligibility Review Matrix](#)
- [CEQA Streamlining For Infill Projects and Projects Consistent With Community Plan and Zoning](#)
- [CEQA Categorical Exemptions](#)
- [CEQA Exemptions for Housing Projects: Project Eligibility Review Matrix](#)
- [Transit Priority Project and Transit-Oriented Project CEQA Exemptions](#)
- [CEQA Article 12.5 - Exemptions For Agricultural Affordable and Infill Housing](#)
- [Legislative Summary of AB 2345 - Density Bonus Law](#)
- [Density Bonus Law: What are Incentives, Concessions, and Waivers?](#)
- [Senate Bill 9: Ministerial Approval of Duplexes and Urban Lot Splits](#)
- [Senate Bill 10: Local Rezoning for “Missing Middle” Housing Production](#)
- [Senate Bill 35: Affordable Housing Streamlined Approval](#)
- [Senate Bill 330 and Senate Bill 8: Summary of Housing Crisis Act of 2019](#)

For additional details on development streamlining including information presented at the virtual workshops, please visit: <https://scag.ca.gov/streamlining>.

1.10 ORGANIZATION OF THE 2024 PEIR

This document is organized into seven chapters, plus an Executive Summary.

- **Executive Summary.** The Executive Summary contains an introduction, project summary, and a summary of the expected environmental impacts resulting from implementation of the Plan and the measures recommended to mitigate those impacts. The summary also includes a comparison of the expected environmental effects of each alternative to the Plan, as well as the areas of controversy, including issues raised by agencies and the public. Additionally, the Executive Summary includes issues to be resolved, including the choice among alternatives, and whether or how to mitigate the significant effects.
- **Chapter 1, Introduction.** This chapter provides an overall introduction to the 2024 PEIR, the CEQA process, and organization of the 2024 PEIR. It describes the SCAG region and authority, purpose and scope of the 2024 PEIR; the characterization of baseline conditions; a discussion of regional population growth and pattern of growth; a brief summary of the Plan, alternatives, and mitigation measures; summary of the environmental review and public outreach process for the Plan and 2024 PEIR; provisions for CEQA for streamlining opportunities; and an overview of the contents of the 2024 PEIR.
- **Chapter 2, Project Description.** Consistent with the provision of CEQA Guidelines Section 15124, this chapter provides relevant background information; summarizes changes that have occurred since adoption of Connect SoCal 2020; provides the location and boundaries of the Plan and general setting information; contains a general description of the technical, economic, and environmental characteristics of the Plan including identifying the Plan's goals and subgoals (project objectives); includes a statement briefly describing the intended uses of the 2024 PEIR; and provides lists of necessary permits and approvals and review and consultation requirements. Although federal environmental review is not required, a discussion of purpose and need for the Plan is also included along with the CEQA-required project objectives.
- **Chapter 3, Environmental Setting, Impacts, and Mitigation Measures.** This chapter identifies the environmental setting for the Plan and provides a programmatic analysis of a regional plan. The following resource categories are analyzed in this chapter: Aesthetics; Agriculture and Forestry Resources; Air Quality; Biological Resources; Cultural Resources; Energy; Geology and Soils; Greenhouse Gas Emissions; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Mineral Resources; Noise; Population and Housing; Public Services; Recreation; Transportation; Tribal Cultural Resources; Utilities and Service Systems; and Wildfire. For each of these resource categories, the analysis addresses: Regulatory Framework (including recent case law), Existing Conditions, Methodology, Thresholds of Significance, Impact Analysis, Mitigation Measures, Level of Significance after Mitigation, and Cumulative Impacts. As allowed by CEQA, the determination of impacts is based on a comparison of the future Plan conditions to the existing conditions (CEQA Guidelines Section 15126(a)). This chapter includes maps that geographically depict spatial and quantitative data.
- **Chapter 4, Alternatives.** This chapter describes a reasonable range of alternatives to the Plan, which would feasibly attain most of the basic objectives of the Plan but would avoid or substantially lessen any of the significant effects of the Plan at a programmatic and region-wide level. It includes a comparison of environmental impacts for the Plan to those for the No Project Alternative and the Intensified Land Use Alternative. The Alternatives are evaluated and compared to the Plan for the resource categories evaluated in Chapter 3.

- **Chapter 5, *Other CEQA Considerations*.** This chapter identifies the significant unavoidable environmental effects, significant irreversible environmental effects, growth inducing impacts, and irreversible damage from environmental accidents of the Plan.
- **Chapter 6, *List of Preparers*.** This chapter lists the contributors to the preparation of this 2024 PEIR.
- **Chapter 7, *Glossary*.** This chapter includes the acronyms used in the document.
- **Appendices.** The 2024 PEIR appendices include:
 - Appendix A, *Notice of Preparation, Public Scoping Materials, and Comments Received*
 - Appendix B, *Air Quality and Health Risk Assessment*
 - Appendix C, *Biological Resources*
 - Appendix D, *Cultural Resources*
 - Appendix E, *Hydrology and Water Quality*
 - Appendix F, *Aviation Noise Technical Report*
 - Appendix G, *Assembly Bill 52 Consultation Summary Report*

1.11 SOURCES

- Association of Environmental Professionals. 2023. 2023 California Environmental Quality Act Statute and Guidelines. https://www.califaep.org/docs/CEQA_Handbook_2023_final.pdf.
- California Air Resources Board (CARB). SB 375 Regional Plan Climate Targets. <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets>. Accessed July 3, 2023.
- California Government Code. Title 7, Division 1, Chapter 2.5: Transportation Planning and Programming [65080-65086.5].
- California Government Code. Title 7, Division 1, Chapter 3: Local Planning 65100-65763.
- California Government Code. Title 7, Division 1, Chapter 4: Zoning Regulations 65800-65912.
- California Government Code. Title 7, Division 2 Subdivisions 66410-66499.38.
- California Public Resources Code, Division 13, Chapter 2.5. Definitions [21060-21074].
- Federal Highway Administration (FHWA). Title 23, U.S.C. <https://www.fhwa.dot.gov/map21/docs/title23usc.pdf>.
- Public Law 91–190. National Environmental Policy Act of 1969. As Amended Through P.L. 118–5. Enacted June 3, 2023.
- Senate Bill No. 375, Chapter 728.
- Southern California Association of Governments (SCAG). May 7, 2020. Certified Connect SoCal 2020 Plan PEIR. <https://scag.ca.gov/certified-2020-peir>. Accessed July 3, 2023.
- SCAG. 2022a. Notice of Preparation of a Program Environmental Impact for the Connect SoCal Plan. <https://scag.ca.gov/news/ceqa-notice-preparation-draft-program-environmental-impact-report-scags-connect-social-2024>. Accessed July 3, 2023.
- SCAG. 2022b. Public Participation Plan, April 2022.
- U.S. Department of Transportation. MAP-21 – Moving Ahead for Progress in the 21st Century. <https://www.fhwa.dot.gov/map21/>. Accessed July 3, 2023.

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CHAPTER 2

Project Description

- 2.1 Introduction
- 2.2 Project Background
- 2.3 Changes Since Adoption of Connect SoCal 2020
- 2.4 Regional Location and General Setting
- 2.5 Purpose and Need for Action
- 2.6 Project Description
- 2.7 Financial Plan
- 2.8 Performance Measures
- 2.9 Intended Uses of the PEIR
- 2.10 List of Permits or Other Approvals Required to Implement the Project
- 2.11 Sources

Consistent with the provisions of California Environmental Quality Act (CEQA) Guidelines Section 15124, this section provides information regarding the proposed 2024–2050 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS), referred to as “Connect SoCal 2024”, “Plan” or “Project”. This chapter includes the Plan’s location, vision and goals, regional growth forecast, and Regional Planning Policies and Implementation Strategies. Connect SoCal has been prepared to comply with metropolitan planning laws, Title 23 United States Code (USC) Section 134 et seq. and California Government Code Section 65080 et seq., which require the preparation of an RTP/SCS that offers policy guidance for projects within SCAG’s jurisdiction.

2.1 INTRODUCTION

Connect SoCal 2024 is a long-range comprehensive plan for the region’s multi-modal transportation system. Preparing the Plan is one of SCAG’s primary statutory responsibilities under federal and state law. An RTP is the mechanism used in California by both metropolitan planning organizations (MPOs) and Regional Transportation Planning Agencies (RTPA) to conduct long-range (at least 20-year) planning in their regions. SCAG must adopt an RTP and update it every four years, or more frequently, if the region is to receive federal and state transportation dollars for public transit, streets/roads, and bicycle and pedestrian improvements.

In 2008, California enacted the Sustainable Communities and Climate Protection Act, also known as Senate Bill 375 (SB 375) (Statutes 2012, Chapter 728), which requires MPOs to include an SCS element as part of their RTP updates, with the purpose of identifying policies and strategies to reduce per capita passenger vehicle-generated GHG emissions (see requirements for an SCS below).

In 2012, SCAG adopted its first combined RTP/SCS, a long-range plan for transportation in the region that links air quality, land use, and transportation needs. The RTP/SCS was last updated in 2020. The Plan updates the regional growth forecast, land use assumptions, and transportation investments that served as the foundation of both the 2016 and 2020 plans.

Connect SoCal 2024 includes a vision and goals for the region. Key components include a growth forecast and Forecasted Regional Development Pattern based on population, household and employment growth projections for the SCAG region through the year 2050 as well as a transportation network including a list of transportation projects and investments. The Plan also identifies Regional Planning Policies and Implementation Strategies that the region could pursue over the Plan horizon. Other components include financial assumptions and expenditures, key transportation investments, and an evaluation of the Plan’s performance. The Plan was developed to achieve targets for greenhouse gas (GHG) emissions reductions, consistent with SB 375 and other regional goals.

Please see the Plan and supplementary technical reports for full details at SCAG’s Connect SoCal 2024 website located at: <https://www.connectsocial.org/Pages/default.aspx>.

This chapter describes the regional location and general setting, the objectives of the project (as well as a purpose and need for action), and a general description of the characteristics of the Project in accordance with CEQA Guidelines Section 15124. The background information is followed by a description of the Plan, including the Plan’s purpose, objectives, and key components.

2.2 PROJECT BACKGROUND

The Plan was developed in accordance with applicable metropolitan planning requirements. The following discussion provides an overview of SCAG's role (responsible and lead agency) as well as the federal and state requirements associated with the preparation of an RTP and SCS.

2.2.1 SCAG'S ROLE

Founded in 1965, SCAG is a federally designated Metropolitan Planning Organization (MPO) under 23 USC 134(d)(1), for the six-county region. SCAG is designated under California state law as a Council of Governments (COG) and a Regional Transportation Planning Agency (RTPA) for the six-county region. SCAG is a Joint Powers Authority, established as a voluntary association of local governments and agencies.

As stated previously, SCAG develops the long-range RTP including sustainable communities strategy and growth forecast component, regional transportation improvement program, regional housing needs allocation (RHNA) and assists in the development of the South Coast Air Quality Management Plans. In 1992, SCAG expanded its governing body, the Executive Committee, to a 70-member Regional Council to help accommodate new responsibilities mandated by the federal and state governments, as well as to provide more broad-based representation of Southern California's cities and counties. With its expanded membership structure, SCAG created regional districts to provide for more diverse representation. The districts were formed with the intent to serve equal populations and communities of interest. Currently, the Regional Council consists of 86 elected officials, representing 67 Districts that include an elected representative of one or more cities of approximately equal population levels. Membership in SCAG's Regional Council also includes representation from each county Board of Supervisors and one representative from the Southern California Native American Tribal Governments. Additionally, SCAG Bylaws provide for representation of transit interests of all of the operators, and Air Districts in the region on the Regional Council and Policy Committees.

The Regional Council has general authority to conduct the affairs of SCAG and directs the actions of the agency throughout the year. Additionally, the Regional Council implements the policy direction provided at the annual General Assembly of the membership, acts upon policy recommendations from SCAG's standing policy committees and external agencies, and appoints standing or ad-hoc subcommittees to study specific programs or issues.

In addition to the six counties and 191 cities that make up SCAG's region, there are six County Transportation Commissions that hold the primary responsibility for programming and implementing transportation projects, programs, and services in their respective counties.

2.2.2 FEDERAL AND STATE REQUIREMENTS

FEDERAL REGIONAL TRANSPORTATION PLAN REQUIREMENTS

Under the FAST (Fixing America's Surface Transportation [Public Law 114-94]) Act and MAP-21 (Moving Ahead for Progress in the 21st Century Act [Public Law 112-141]), the U.S. Department of Transportation (USDOT) requires that MPOs, such as SCAG, prepare long-range RTPs and update them every four years if they are in areas designated as "nonattainment" or "maintenance" for federal air quality standards. Prior to enactment of MAP-21, the primary federal requirements regarding RTPs were included in the metropolitan transportation planning rules—Title 23 Code of Federal Regulations (CFR) Part 450 and 49 CFR Part 613. The FAST Act and

MAP-21 make a number of changes to the statutes that underpin these regulations. Key federal requirements for RTPs include the following:

- Developed through an open and inclusive process that ensures public input; seeks out and considers the needs of those traditionally under served by existing transportation systems; and consults with resource agencies to ensure potential problems are discovered early in the RTP planning process;
- Developed for a period of not less than 20 years into the future; RTPs must reflect the most recent assumptions for population, travel, land use, congestion, employment, and economic activity;
- Have a financially constrained element, transportation revenue assumptions must be reasonable, and the long-range financial estimate must take into account construction-related inflation costs;
- Include a description of the performance measures and performance targets used in assessing the performance of the transportation system;
- Include a system performance report evaluating the condition and performance of the system with respect to performance targets adopted by the state that detail progress over time;
- May include multiple scenarios for consideration and evaluation relative to the state performance targets as well as locally developed measures;
- Conform to the applicable federal air quality plan, called the State Implementation Plan (SIP) for ozone and other pollutants for which an area is not in attainment or in maintenance; and
- Consider planning factors and strategies in the local context.

An RTP outlines the region's goals and strategies for meeting current and future mobility needs, providing a foundation for transportation planning and funding decisions by local, regional, and state officials that are ultimately aimed at achieving a coordinated and balanced transportation system. In addition, an RTP identifies the region's transportation needs, sets forth actions, programs, and a plan of projects to address the needs consistent with adopted regional strategies and goals, and documents the financial resources needed to implement the RTP. The process for development of the RTP takes into account all modes of transportation, accompanied by a continuing, cooperative, and comprehensive planning approach that is performance driven and outcome-based, consistent with the provisions of MAP-21 and the FAST Act.

STATE REGIONAL TRANSPORTATION PLAN REQUIREMENTS

The RTP must also comply with California Government Code Section 65080. The state requirements largely mirror the federal requirements and require each transportation-planning agency in urban areas to adopt and submit an updated RTP to the County Transportation Commission (CTC) and the California Department of Transportation (Caltrans) every four years. To ensure a degree of statewide consistency in the development of RTPs, the CTC, pursuant to Government Code Section 14522, adopted RTP Guidelines. The RTP Guidelines include a requirement for program-level performance measures, which include objective criteria that reflect the goals and objectives of the RTP. The RTP Guidelines are intended to assist MPOs with development of their RTPs to be consistent with federal and state planning requirements. An RTP is used to guide the development of the Federal Transportation Improvement Program (FTIP), a federally mandated four-year program of all regionally important surface transportation projects and all projects that will receive federal funding, as well as other transportation programming documents and plans. Connect SoCal 2024 follows the 2017 RTP Guidelines, which were adopted on January 18, 2017. The CTC has authorized an update to the RTP Guidelines to be adopted in

2024. Caltrans will prepare revisions that promote implementation of statutory requirements and a statewide approach to the transportation planning process (Caltrans 2023).

STATE SUSTAINABLE COMMUNITIES STRATEGY REQUIREMENTS

Pursuant to the Sustainable Communities and Climate Protection Act of 2008 (SB 375), the SCS is a required component of the RTP. SB 375 directs the California Air Resources Board (CARB) to set regional targets for reducing GHG emissions (SCAG's 2018 GHG reduction targets are: a reduction of 8 percent in 2020 and 19 percent in 2035 as compared to 2005). The law establishes a "bottom up" approach to ensure that cities and counties are involved in the development of regional plans to achieve those targets. SB 375 requires that an MPO prepare and adopt an SCS that sets forth a Forecasted Regional Development Pattern that reduces GHG emissions associated with the land use and transportation network, measures, and policies. SB 375 is part of California's overall strategy to reach GHG emissions reduction goals as set forth by Assembly Bill (AB) 32, SB 32, and Executive Orders S-03-05 and B-30-15. According to California Government Code Section 65080(b)(2)(B), the SCS is required to:

1. Identify the general location of land uses, residential densities, and building intensities within the region;
2. Identify areas within the region sufficient to house all the population of the region over the Plan horizon;
3. Identify areas within the region sufficient to house an eight-year projection of the regional housing need (per Government Code Section 65584.01(et al.);
4. Identify a transportation network to service the regional transportation needs;
5. Gather and consider the best practically available scientific information regarding resources areas and farmland in the region;
6. Consider the state housing goals;
7. Set forth a Forecasted Regional Development Pattern for the region; and
8. Allow the RTP to comply with the federal Clean Air Act (CAA) of 1970 (42 USC 7401 et seq.), such that when the SCS is integrated with the transportation network, and other transportation measures and policies, GHG emissions from automobiles and light duty trucks will achieve, if there is a reasonable way to do so, the GHG emission reduction targets approved by CARB. If the SCS does not achieve the GHG emission targets set by CARB, an Alternative Planning Strategy (APS) must be developed to demonstrate how the targets could be achieved.

2.3 CHANGES SINCE ADOPTION OF CONNECT SOCIAL 2020

Connect SoCal 2024 continues to integrate the transportation network and related strategies with land use strategies and the forecasted growth pattern to address changes in the region since the adoption of the 2020 RTP/SCS. Chapter 2 in Connect SoCal 2024 highlights a number of changing circumstances and trends that have occurred in the region that had an effect on the development of the Plan. SCAG has been tracking several trends triggered by the COVID-19 pandemic, such as changes to how people move around the region and the pace of housing production. While many trends have returned to pre-pandemic levels, others such as climate and technology continue to change. Key changes to the region include: the COVID-19 pandemic, equity, RHNA allocation, climate change, and technology, which are discussed below.

The COVID-19 pandemic had a significant impact on travel patterns and economic activity, and there remains uncertainty as to the “new normal” in the region. In addition, people’s short-term spending and travel habits may be affected by recent increases in inflation and concerns about a recession, and the need for resiliency could greatly increase the magnitude of investments needed to maintain and preserve the transportation system. The pandemic resulted in a rethinking of the workplace, with an increase in the number of employees working remotely.

Historically, low-income minority communities have faced limitations in mobility, housing and accessing essential services due to federal, state and local policies that resulted in racial segregation, gentrification, displacement and systemic underinvestment. The 2022 Scoping Plan for Achieving Carbon Neutrality also acknowledges the legacy of transportation and land use decision making that has resulted in marginalization of low-income communities and communities of color. SCAG aims to lead with racial equity as a focal point to address the pervasive and deep inequities faced by people of color and support the overarching goal of the creation of a just and equitable society.

In addition, SCAG is addressing the housing shortage in Southern California by encouraging and supporting the development and implementation of housing elements. The regional housing needs assessment (RHNA) process takes place every eight years, as required by state law, or every other RTP/SCS cycle. The most recent (6th cycle) RHNA allocation was adopted by SCAG’s Regional Council in 2021 and relied on input data from Connect SoCal 2020. As part of the 6th cycle RHNA, the state department of Housing and Community Development (HCD) included explicit measures for existing housing needs—specifically, overcrowding and cost-burden rates—in their determination of the SCAG region’s total housing need of 1,341,827 units. The emphasis of RHNA shifted substantially toward addressing existing need, whereas in prior cycles it had focused almost entirely on need due to anticipated population growth.

Since SCAG adoption of the RHNA allocation plan in 2021, local jurisdictions have been in the process of adopting housing elements. At the time of preliminary forecast development (April 2022) only 12 of the region’s 197 jurisdictions had 6th cycle housing elements which had been adopted and certified by the state. While local jurisdictions were requested to consider housing element updates in their review of local data exchange (LDX) growth data, only 87 had adopted and certified housing elements by January 2023, immediately after the deadline for LDX input. Additionally, some local jurisdictions may not be required to complete rezonings associated with housing element updates until October 2024, rendering data on newly available sites inherently incomplete (or unavailable) for the purposes of Connect SoCal 2024.

Nevertheless, the 6th cycle of RHNA has the potential to substantially increase the quantity of sites available for housing especially in jurisdictions with RHNA allocations in excess of their Connect SoCal 2020 household forecasts. As such, SCAG’s preliminary growth forecast at the jurisdiction and neighborhood levels, released in May 2022, sought to reflect any capacity changes from the 6th cycle of RHNA as this is an adopted policy with a potential impact on household growth by 2050.

The region is also facing the impact of climate change and by the year 2050, the region is projected to face numerous challenges and pressures, including heightened risks of intense wildfires, droughts, extreme heat, extreme rain, rising sea levels and seismic events.

New and emerging technologies have had a significant impact on the transportation sector, transforming various aspects of mobility, efficiency, safety and user experience. These technologies include advancements in vehicle technology, like electric vehicles and automated vehicles, as well as advancement in travel planning and safety systems, such as Mobility as a Service and Advanced Driver Assistance Systems.

This cycle, Chapter 3 of the Plan divides the challenges facing the region into four main areas with further subdivision of issues:

1. **Mobility**
 - a. Limited reliable travel options besides driving
 - b. Transportation safety
2. **Communities**
 - a. Housing affordability
 - b. Unhoused population
 - c. Out-migration
 - d. Growing sustainably, slowly
3. **Environment**
 - a. Climate Change
 - b. Poor air quality and related health impacts
 - c. Loss of open space
4. **Economy**
 - a. Lack of economic opportunity
 - b. Population aging
 - c. Increasing supply-chain complexities

To address the four main issue areas, the Plan contains goals as well as detailed Regional Planning Policies and Implementation Strategies (described in Section 2.6.5 below) for each issue area.

Understanding the context of the region, including the history and challenges, Connect SoCal 2024 was developed with extensive regional collaboration, public outreach and continued bottom-up planning process in order to reflect the region's needs, priorities, and desires, as well as meeting applicable federal and state requirements. As noted above, Connect SoCal 2024 utilized the LDX process to solicit land use and growth input directly from SCAG's local jurisdictions, and the Plan is the first RTP/SCS prepared by SCAG that did not modify local data inputs.

2.4 REGIONAL LOCATION AND GENERAL SETTING

2.4.1 REGIONAL LOCATION

The SCAG region consists of six counties that includes Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura, and 191 cities (**Map 2-1, SCAG Region**). The total area of the SCAG region is approximately 38,000 square miles. Additionally, the SCAG region consists of 15 sub-regional entities that have been recognized by the Regional Council as partners in the regional policy planning process (**Map 2-2, SCAG Subregions**). The SCAG region is home to approximately 19 million people as of 2019. This represents approximately 5.7 percent of the 328 million people in the United States in 2019 and approximately 48 percent of California's 2019

population (United States Census 2019). To the north of the SCAG region are the counties of Kern and Inyo; to the east is the states of Nevada and Arizona; to the south is the U.S.-Mexico border; to the west and south is the county of San Diego; and to the northwest is the Pacific Ocean. The region includes the county with the largest land area in the nation, San Bernardino County, as well as the county with the highest population in the nation, Los Angeles County. The following provides a brief summary of the size and population of each of the six counties in the SCAG region in 2019 (SCAG 2023a).

- **Imperial County.** Imperial County covers an area of 4,482 square miles. El Centro is the city with the highest population level in the county, with approximately 44,600 people. Overall, the county has 181,000 residents.
- **Los Angeles County.** Los Angeles County covers an area of 4,751 square miles. Los Angeles is the city with the highest population level in the county, with approximately 3,907,300 people. Overall, the county has 10,046,000 residents.
- **Orange County.** Orange County covers an area of 948 square miles. Anaheim is the city with the highest population level in the county, with approximately 347,000 people. Overall, the county has 3,191,000 residents.
- **Riverside County.** Riverside County covers an area of 7,303 square miles. Riverside is the city with the highest population level in the county, with approximately 311,100 people. Overall, the county has 2,386,000 residents.
- **San Bernardino County.** San Bernardino County covers an area of 20,105 square miles. San Bernardino is the city with the highest population level in the county, with approximately 221,200 people. Overall, the county has 2,175,000 residents.
- **Ventura County.** Ventura County covers an area of 2,208 square miles. Oxnard is the city with the highest population level in the county, with approximately 202,700 people. Overall, the county has 849,000 residents.

2.4.2 GENERAL SETTING

TRANSPORTATION NETWORK

The region's transportation network comprises more than 33,485 miles of bus routes, including local bus, express and bus rapid transit (BRT), 5,000 miles of bikeways, 73,000 lane miles of roadways, and 134 miles of express lanes (see **Map 2-3, Existing Transit Network, 2019, Map 2-4, Existing Arterial Network, 2019, Map 2-5, Existing Regional Goods Movement System, and Map 2-6, Major Airports in SCAG Region**). The Ports of Los Angeles and Long Beach are the largest container importers in the Western Hemisphere that contribute to our expansive goods movement system. The region's aviation system is one of the busiest in the world in terms of air passenger and cargo demand, with more than 116.5 million annual passengers and 3.53 million tons of cargo in 2019. Southern California features:

- 40 miles of heavy and light rail
- 538 miles of commuter rail (Metrolink)
- 33,485 miles of bus routes
- 5,075 miles of bikeways
- 74,172 total lane miles of roadways
- 2,302 miles of express bus lanes
- 161 miles of high-occupancy toll (HOT) roads

LAND USES

The SCAG region is comprised of complex patterns of land uses including residential, commercial/office, industrial, institutional, agricultural, and open space land uses (see **Map 2-7, Existing Land Uses**). The region has incredible diversity in its built environment and land use patterns. As of 2019, the SCAG region has a total of 6.6 million units in its housing stock, with over half of the housing units having been built before 1980. While 64 percent are single-family homes, 36 percent are multifamily homes such as condominiums, townhouses, and apartments. The total amount of housing production has historically lagged behind the region's growing population. There are many contributors to the overall housing shortfall, such as zoning, costs and fees that prevent projects from being feasible, time delays, environmental litigation, community resistance to medium and high-density projects, and lack of local funding mechanisms. The impacts of the housing crisis are disproportionately burdensome on underserved communities, such as low-income households and communities of color.

The six counties within the SCAG region contain nearly 22 million acres of "open space" combined. These lands include the region's national forests, state parks, military installations, other public lands, and various private holdings. These areas provide important environmental services, including storing and providing clean drinking water, reducing pollution, and mitigating urban heat-island effects. Much of the open space in the region has been left in its natural state, however many non-native species have transformed what was once native habitat. As of 2018, about half of California has been mapped and classified according to this standard; much of southern California has not yet been classified (CDFW 2023). Barriers to wildlife movement exist throughout the SCAG region, including large areas of urban development and multilane freeways that cut off regional movement for migratory and resident species alike. These barriers can affect all species from large mammals to small insects and can lead to significant degradation of ecosystem function and plant community composition.

More than 20 million acres of open space within the SCAG region is currently protected under a Habitat Conservation Plan or Natural Community Conservation Plan or will be protected by a future conservation plan that is currently in its planning stages. Data from CDFW and USFWS show 31 plans with durations of 16–80 years providing conservation efforts nearly 3 million acres in the SCAG region. These plans identify and provide for the regional protection of plants, animals and their habitats, while allowing compatible and appropriate economic activity.

2.5 PURPOSE AND NEED FOR ACTION

Transportation projects for which federal approval or funding is required must be listed in the long-range RTP/SCS and also in the short-range FTIP.¹ Such projects must comply with National Environmental Policy Act (NEPA), which requires the preparation of a statement of purpose and need in conjunction with environmental documents. Although adoption of the Plan is not subject to NEPA, SCAG has included this statement of purpose and need to enable project proponents to discuss the purpose and need for their individual projects relative to the Plan.

The SCAG Regional Council has the responsibility for consideration of the Plan with input from its member jurisdictions, agencies, and stakeholders. Since the Plan includes transportation improvements that may involve a federal action (such as the use of federal funds, right-of-way, permits and or leases), the requirement for environmental review under NEPA as set forth in 40 CFR Section 1502.13 may be triggered at the time that project-level design is initiated. Therefore, where determined appropriate by a NEPA lead agency undertaking a

¹ SCAG prepares the FTIP every two years to implement projects and programs listed in the RTP/SCS. The FTIP identifies specific funding sources and fund amounts for each project with the purpose of implementing the Plan.

site or project-specific federal action evaluated in this PEIR at the programmatic-level of detail, this statement of purpose and need may be incorporated by reference in site- or project-specific NEPA documents as provided in 40 CFR Section 1502.21.

The purpose of the Plan is to provide a clear, long-term vision of the regional transportation and land use goals, policies, objectives, strategies, and investments for the SCAG region while at the same time providing strategies to meet GHG emissions reduction and air quality conformity requirements. Development of the Plan is driven by the need to plan for the region's changing socioeconomic, transportation, financial, technological, and environmental conditions. The Plan is also necessary to plan for improvements to the aging regional transportation system and to preserve its long-term viability in light of projected demographic growth.

2.6 PROJECT DESCRIPTION

The Plan is an update to SCAG's 2020 RTP/SCS, which was adopted by SCAG's Regional Council for all purposes on September 3, 2020. Building upon the progress made since the 2020 RTP/SCS, Connect SoCal 2024 is a long-range visioning plan for the six-county SCAG region, reflecting a continuation of the shift towards more efficient resource management including transportation infrastructure resources, land resources and environmental resources. The Plan highlights the existing land use and transportation conditions throughout the SCAG region, and forecasts how the region's transportation needs will be met between 2024 and 2050. The Plan identifies and prioritizes expenditures of the anticipated funding for transportation projects of all transportation modes: highways, streets and roads, transit, rail, bicycle, and pedestrian, as well as aviation ground access. The Plan was developed to achieve targets for greenhouse gas (GHG) emissions reductions, consistent with SB 375 and other regional goals. In accordance with federal fiscal constraint requirements, Connect SoCal 2024 is a financially constrained Plan in terms of transportation revenues and expenditures.

Connect SoCal 2024 includes a vision and goals for the region. Key components include a growth forecast and Forecasted Regional Development Pattern based on population, household and employment growth projections for the SCAG region through the year 2050 as well as a transportation network including a list of transportation projects and investments. The Plan also identifies Regional Planning Policies and Implementation Strategies that the region could pursue over the Plan horizon. Other components include financial assumptions and expenditures, key transportation investments, and an evaluation of the Plan's performance.

Please see the Plan and supplementary technical reports for full details at SCAG's Connect SoCal 2024 website located at: <https://www.connectsocial.org/Pages/default.aspx>.

2.6.1 PLAN VISION AND GOALS

Connect SoCal 2024 represents the vision for the region and reflects the planned transportation investments, policies and strategies that will integrate with the Forecasted Regional Development Pattern to achieve the Plan's goals. The vision and goals for Connect SoCal 2024 are rooted in the direction set forth by Connect SoCal 2020, reflecting both SCAG's statutory requirements and the emerging trends and persistent challenges facing the region.

SCAG's vision for Southern California in the year 2050 is:

"A healthy, prosperous, accessible and connected region for a more resilient and equitable future."

The following are the goals and subgoals of Connect SoCal 2024 designed to help SCAG achieve this vision:

Mobility: *Build and maintain a robust transportation network.*

- Support investments that are well-maintained and operated, coordinated, resilient and result in improved safety, improved air quality and minimized greenhouse gas emissions.
- Ensure that reliable, accessible, affordable and appealing travel options are readily available, while striving to enhance equity in the offerings in high-need communities.
- Support planning for people of all ages, abilities and backgrounds.

Communities: *Develop, connect and sustain communities that are livable and thriving.*

- a. Create human-centered communities in urban, suburban and rural settings to increase mobility options and reduce travel distances.
- b. Produce and preserve diverse housing types in an effort to improve affordability, accessibility and opportunities for all households.

Environment: *Create a healthy region for the people of today and tomorrow.*

- Develop communities that are resilient and can mitigate, adapt to and respond to chronic and acute stresses and disruptions, such as climate change.
- Integrate the region’s development pattern and transportation network to improve air quality, reduce greenhouse gas emissions and enable more sustainable use of energy and water.
- Conserve the region’s resources.

Economy: *Support a sustainable, efficient and productive regional economic environment that provides opportunities for all residents.*

- Improve access to jobs and educational resources.
- Advance a resilient and efficient goods movement system that supports the economic vitality of the region, attainment of clean air and quality of life for our communities.

2.6.2 REGIONAL GROWTH FORECAST AND FORECASTED REGIONAL DEVELOPMENT PATTERN

As part of developing a Sustainable Communities Strategy per SB 375, SCAG must include a “forecasted development pattern for the region, which, when integrated with the transportation network and other transportation measures and policies...” will enable SCAG to reach its GHG emission reduction target of 19 percent below 2005 levels by 2035.

SCAG prepared a regional growth forecast to determine the projected increase in population, households, and jobs based on local general plans and known development entitlement agreements, including available data from 6th cycle housing element updates. In addition, regional sustainability strategies, including priority growth and environmentally constrained areas were included based on Connect SoCal 2020. The forecast reflects changes to state- and local-housing-supportive policy as well as stronger housing production numbers in recent

years, including ADUs which are historically undercounted.² This forecasted regional development pattern for Connect SoCal 2024 details where people, households and employment will be located through 2050, the horizon year of the Plan (see **Map 2-8, Forecasted Regional Development Pattern**).

In addition to far more near-term household growth, the forecasted regional development pattern also demonstrates housing growth in generally more sustainable locations (i.e., infill locations in proximity to infrastructure) within the region than Connect SoCal 2020.

The regional and county growth forecasts reflect recent and past trends and expert-derived demographic and economic assumptions. In contrast to short-range forecasts, which focus on business cycles and market trends, a 30-year time horizon relies more heavily on births, deaths, migration and the strength of a region’s economic base compared to the nation as a whole. Due to changes in these trends and assumptions, SCAG is projecting just over half the level of population growth over this Plan’s horizon as compared to what was anticipated in Connect SoCal 2020. (**Table 2-1, 2019–2050 Population, Households, and Employment Projections in the SCAG Region**).

TABLE 2-1 2019–2050 Population, Households, and Employment Projections in the SCAG Region

COUNTY NAME	POPULATION 2019	POPULATION 2050	% INCREASE	HOUSEHOLDS 2019	HOUSEHOLDS 2050	% INCREASE	EMPLOYMENT 2019	EMPLOYMENT 2050	% INCREASE
Imperial	181,000	210,000	16%	52,000	72,000	39%	69,000	91,000	32%
Los Angeles	10,046,000	10,767,000	7%	3,393,000	4,139,000	22%	5,031,000	5,433,000	8%
Orange	3,191,000	3,439,000	8%	1,069,000	1,253,000	17%	1,805,000	2,019,000	12%
Riverside	2,386,000	2,992,000	25%	744,000	1,062,000	43%	847,000	1,185,000	40%
San Bernardino	2,175,000	2,623,000	21%	657,000	953,000	45%	860,000	1,145,000	33%
Ventura	849,000	852,000	<1%	278,000	318,000	14%	363,000	476,000	31%
SCAG Region	18,827,000	20,882,000	11%	6,193,000	7,798,000	26%	8,976,000	10,248,000	14%

Source: SCAG 2023a

Consistent with global trends, the older-age population of the SCAG region is steadily growing. Older people tend to live alone or in smaller households, have different transportation and spending patterns, and lower labor force participation.

From 2000 to 2019, population in the SCAG region increased by nearly 2.3 million people. Riverside County had the largest share of population growth among the six counties in the SCAG region during this period, adding

² The Connect SoCal Regional Growth Forecast begins with an expert assessment of regional demographic and economic trends and uses a variety of data sources—including local land use plans—to assess where growth is most likely to occur within the region, emphasizing a balance between future employment, population, and households. SCAG’s RTP/SCS growth forecasting process is also informed by the Regional Growth Vision and integrates input from local jurisdictions. As discussed above, SCAG’s preliminary growth forecast at the jurisdiction and neighborhood levels, released on May 23rd, 2022, sought to reflect capacity changes from the 6th cycle of RHNA based on available housing elements and information from jurisdictions. SCAG used its best efforts to incorporate the RHNA, but the data is inherently incomplete because only 12 of 197 jurisdictions had certified housing elements, and some local jurisdictions may not be required to complete rezoning associated with housing elements until October 2024. However, it is expected that household growth over the Connect SoCal 2024 horizon will exceed the 6th cycle RHNA housing unit need.

approximately 829,000 new residents (approximately 37 percent of the region’s increase in population during that time period). Los Angeles County followed with the next largest share and experienced an increase of approximately 502,000 new residents (nearly 22 percent of the region’s increase in population).

SCAG has the opportunity to analyze and address the inequities that the government and planning profession have created by systemically driving and perpetuating societal differences along racial lines. These inequities have resulted in vastly different living and social conditions, as well as less access to opportunities. SCAG considers potential impacts on people of color and low-income households in the regional growth, transportation and economic development planning and analysis, and recognizes that more affirmative approaches that seek to counter the effects of historic practices are needed to advance equity and social justice across the region. The Regional Planning Policies and Implementation Strategies start to address these issues.

PRIORITY DEVELOPMENT AREAS

Priority Development Areas (PDAs) are areas within the SCAG Region where future growth can be located in order to help the region reach mobility and environmental goals (see **Map 2-9, Priority Development Areas**). Generally, this means that people in these areas have access to multiple modes of transportation or trip origins and destinations are closer together, thereby allowing for shorter trips. These areas would accommodate 60 percent of forecasted population growth, 61 percent of forecasted household growth, and 65 percent of forecasted employment growth between 2019 and 2050. PDAs account for 4.8 percent of the region’s total land area and include Transit Priority Areas (TPAs), Neighborhood Mobility Areas (NMAs), Livable Corridors and Spheres of Influence (SOIs) (in unincorporated areas only). 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.

- **Transit Priority Areas (TPAs).** TPAs are areas within one-half mile of existing or planned major transit stops.³ Infill within TPAs can reinforce the assets of existing communities, efficiently leveraging existing infrastructure and potentially lessening impacts on natural and working lands. Focusing regional growth in areas with planned or existing major transit stops is key to achieving equity, economic and environmental goals.
- **Neighborhood Mobility Areas (NMAs).** NMAs focus on improving, restoring, and enhancing safe and convenient connections to schools, hospitals, shopping, services, places of worship, parks, greenways, and other destinations. Four elements of an NMA are: (1) Intersection density, (2) Low-speed streets, (3) Land use diversity, and (4) Accessibility to amenities within 1 mile using street network distances.
- **Livable corridors.** Livable corridors are key corridors where jurisdictions can plan for increased density at nodes and redevelopment of single-story under-performing retail with higher-density housing and employment centers. Many of the strategic nodes along key corridors are located within High Quality Transit Corridors (HQTCs), making transit a more convenient and viable option. This strategy integrates certain transit improvements, including Bus Rapid Transit (BRT), other features improving bus performance and user experience, and certain active transportation improvements to support safe bicycling and walking.
- **Spheres of Influence (SOIs).** SOIs are existing or planned service areas within unincorporated areas of SCAG’s six counties. A city will periodically annex parcels in an SOI into the city limits to include new

³ A major transit stop is defined in state statute as a site containing an existing or planned rail or bus rapid transit station, a ferry terminal served by either 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.

developments or areas with infrastructure needs. Prioritizing unincorporated county growth within existing SOIs helps discourage urban sprawl and the premature conversion of agricultural and natural lands—and typically makes more efficient use of infrastructure that can reduce costs to taxpayers. As a result, only 4 percent of the region’s future household growth from 2019 to 2050 will be located in SOIs outside of incorporated city boundaries.

GREEN REGION RESOURCE AREAS

Green Region Resource Areas (GRRAs), which derive from SB 375 statute and SCAG’s role in the protection of resource areas and farmland, are considered alongside the PDAs in the preparation of the forecasted regional development pattern (see **Map 2-10, Green Region Resource Areas**). GRRAs depict the region’s natural assets – areas with acute risks from climate change – and highlight areas where future growth could result in negative environmental impacts if left unaddressed. Generally – but not exclusively – these areas reflect the urban-rural fringe away from existing developed areas. Thus, reducing growth in these areas has the co-benefit of reducing growth far from jobs and destinations. As the region faces unprecedented challenges in balancing housing and employment growth with resource conservation, the preservation and restoration of GRRAs can reduce risks from climate change and promote future resilience in the region. GRRAs consist of the following ten topic areas:

- **Flood Areas.** FEMA delineates areas that are subject to inundation by a flood with a 1 percent or greater chance of being equaled or exceeded during any given year, commonly referred to as the 100-year flood or base flood.
- **Coastal Inundation (Sea Level Rise).** Potential inundation of coastal areas resulting from a projected 3-foot rise in sea level above current Mean Higher High Water (MHHW) conditions.
- **Wildfire Risk.** CAL FIRE designates areas that are at risk from significant fire hazards based on fuels, terrain, weather and other relevant factors, which are referred to as "Fire Hazard Severity Zones" (FHSZ). Also included are areas along the edge of established communities (Wildland-Urban Interface) and areas where human habitation is mixed with areas of flammable wildland vegetation (Wildland-Urban Intermix) zones.
- **Open Space and Parks.** All publicly owned open space, including those with fee ownership, as identified in the California Protected Areas Database (CPAD), the California Conservation Easement Database (CCED), and the County of Ventura Save Our Agricultural Resources (SOAR).
- **Endangered Species and Plants.** Location and condition of species of rare and sensitive plants, animals and natural communities in California.
- **Sensitive Habitat Areas.** Areas with a high concentration of animals and plant life that are sensitive to growth, such as wetlands, habitat connectivity areas and areas rich with natural resources to support various species.
- **Natural Community and Habitat Conservation Plans.** These plans identify and provide for the regional protection of plants, animals and their habitats, while allowing compatible and appropriate economic activity.
- **Tribal lands.** Locations of the 16 Federally Recognized Tribal entities in the SCAG region.
- **Military Installations.** Military lands managed by the U.S. Department of Defense.
- **Farmlands.** Agricultural and working lands as defined by the Farmland Mapping & Monitoring Program (FMMP) in the California Department of Conservation.

2.6.3 PROJECT LIST

Connect SoCal 2024 includes \$750.1 billion of investment in our regional transportation system. SCAG collects projects submitted by CTCs, based on their county or district level needs and goals. These submissions generally align with the Regional Goals and do not undergo an additional selection process. SCAG assesses transportation performance at the system level. The Connect SoCal 2024 project list (included as Project List Technical Report of the Plan) includes approximately 2,000 projects with both near-term and long-term investments: the FTIP reflects near-term investments which form the foundation of the RTP project investment strategy and represents the first six years of already-committed funding for projects requiring federal approval or those that are regionally significant. The RTP reflects long-term investments and contains a financially constrained set of transportation projects above and beyond the FTIP, including projects submitted from the CTCs and additional Regional Strategic Investments needed to achieve the Plan's goals and performance targets.

2.6.4 REGIONAL STRATEGIC INVESTMENTS

Connect SoCal 2024 is a financially constrained plan in terms of transportation revenues and expenditures. However, there is a gap between what can be achieved beginning at the local level and what must be achieved to meet performance requirements. The gap is addressed through a set of Regional Strategic Investments, supported by Regional Planning Policies and Implementation Strategies. Key among these strategies is a transition away from fuel tax-based revenues and an increased reliance on user fees for various transportation facilities in the region. User fees are linked directly to how people travel. They can support the region's infrastructure needs and promote a more balanced transportation system by encouraging residents and visitors to consider the effects that their travel choices have on the larger transportation ecosystem. User fees can be structured and implemented to serve as a critical tool for advancing environmental, economic and equity-related goals, including reducing traffic congestion and vehicle miles traveled, while encouraging increased uptake of active transportation modes and boosting transit ridership. In the SCAG region, numerous policy and technical studies have been conducted on the subject. However, more work is planned to examine and demonstrate the viability of user-fee systems, including toll networks, mileage-based user fees to replace fuel taxes, and congestion pricing zones that levy fees based on time-of-day and congestion levels. Connect SoCal 2024 includes these user-fee-based funding strategies to support system management, preservation and resilience, and to contribute to the region's greenhouse gas reduction goals. SCAG further considers the potential equity concerns that accompany user fee policies and assumes mitigation measures, such as the establishment of a mobility equity fund. This can provide resources that can increase access for priority equity communities, particularly transportation equity zones (TEZs).

The following Regional Strategic Investments reflect what is necessary to maintain a state of good repair of our existing network, support a multimodal network, and fund system improvements and maintenance (for a full list of Regional Strategic investments and the proposed user fee structures, see Chapter 3 of the Plan):

- **System Preservation and Resilience: Highways, Local Streets and Roads.** "Fix it First" has been a guiding principle for prioritizing transportation funding in SCAG's RTPs for the last decade. The cost of rebuilding roadways is fourteen 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. Connect SoCal 2024 includes \$75.4 billion towards the preservation, operation and resilience needs of the state highway system and \$87.7 billion towards the preservation, operation and resiliency needs of regionally significant local streets and roads.

- **Managing the System: Transportation System Management.** Connect SoCal 2024 increases investment and strengthens policy levers to optimize system performance while realizing greenhouse gas reduction quickly and efficiently. SCAG will pursue the following management strategies in coordination with regional and local partners:
 - **Regional Express Lanes Network: Concept of Operations and Buildout.** 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 operate on the principle of congestion pricing—when more vehicles are using those lanes, the price increases accordingly to manage congestion in the lanes (see **Map 2-11, Planned Regional Express Lane Network**). Express lanes and toll roads also generate revenues that fund construction and operation of the facilities and can relieve air pollution and GHG emissions associated with congestion.
 - **Intelligent Transportation System (ITS).** SCAG’s ITS program plans for transportation technology advancements and assesses potential impacts to the transportation system. This includes, but is not limited to, continuing to maintain and update the multi-county Regional ITS Architecture, incorporating revisions to existing projects and any proposed new projects as part of the RTP/SCS development, and participating in statewide and county Regional ITS Architecture update efforts.
- **Smart Cities.** The Smart Cities Program must evolve and adapt to the latest trends and technologies. SCAG will update the Smart Cities Vision Plan (by July 2026) and develop critical research reports focused on emerging technologies.
- **Future Workplace.** This initiative focuses on the strategies, implementation and impacts of telework and tele-everything as the world shifts to post-pandemic behaviors—through the lens of smart cities and transit demand management.
- **Transit and Multimodal Integration: Regional Enhancements and Improvements.** The region has ambitious goals to reduce greenhouse gas emissions in the transportation sector, which is the largest source of carbon dioxide emissions in California and a primary driver of climate change. This will be achieved, in part, by reducing single-occupancy vehicle trips and increasing transit/rail mode share (see **Map 2-12, 2050 Plan Transit Network**). A key step toward meeting these goals, as well as local and county goals for mobility and equity, can come from improving the speed and reliability of transit/rail services throughout the region. Since 1991, the region has spent over \$196 billion on transit (in 2019 dollars). Connect SoCal 2024 strategies consists of three main elements:
 - **Dedicated Transit Lanes.** The regional transit priority network is intended to enable enhanced transit services, improved mobility, accessibility and sustainability.
 - **Zero-Emission Bus Acceleration.** All transit agencies are required to transition to 100 percent zero-emission bus fleets by 2040 (Innovative Clean Transit regulation), a decade before the horizon year of Connect SoCal. Due to the upfront costs and supportive infrastructure necessary, additional funding is needed to support the transition.
 - **Mobility Hubs.** Mobility hubs are places where we can seamlessly connect with multiple modes of transportation in a safe, comfortable and accessible environment. SCAG’s strategy is to focus targeted investments in a set of prioritized mobility hubs distributed across the region.
- **Complete Streets: Planning for all Users.** Connect SoCal 2024 provides for a future where everyone has safe, affordable, reliable and sustainable transportation options to access opportunities and resources necessary to thrive requires additional transportation investments.

- **Complete Streets.** Complete streets are designed to support the safety, comfort and mobility for all road users. The approaches vary based on community context, but elements often include comfortable sidewalks, bicycle lanes, transit priority lanes and signals, high-quality transit stops, frequent and safe crosswalks, median islands, accessible signals, curb extensions, modified vehicle travel lanes, and streetscape and landscape treatments. They may also accommodate and optimize new technologies and micromobility devices, first mile/last mile connections to transit/rail and curbside management strategies including last-mile deliveries. SCAG's strategy is to focus targeted investments on corridors on the High Injury Network (HIN), where safety issues are concentrated and improvements to eliminate these issues would encourage mode shift.
- **Safe Routes to School (SRTS).** The primary goal of SRTS is to encourage and facilitate active transportation options while enhancing the safety and accessibility of routes used by people walking, biking or rolling. These programs often involve a combination of infrastructure improvements, educational campaigns and policy changes to create safer environments for traveling via active transportation. SCAG's strategy is to focus targeted investments on corridors within the High Injury Network (HIN) and located in close proximity to K-12 schools.

2.6.5 REGIONAL PLANNING POLICIES AND IMPLEMENTATION STRATEGIES

The Plan includes project lists from County Transportation Commissions and future land use and growth information from local jurisdictions. These provide the foundation for the Plan elements and the shape where the region is headed. As noted above, there is a gap between what can be achieved from a bottom-up process and what must be achieved to meet the performance requirements. This gap is addressed through the Regional Strategic Investments and supported by Regional Planning Policies and Implementation Strategies, which are discussed below.

REGIONAL PLANNING POLICIES

SCAG developed a set of Regional Planning Policies to guide decision-making in the region that aligns with the Plan's vision and achievement of the goals. The Regional Planning Policies establish broad regional policies for integrated land use and transportation planning and identify the path towards realizing the vision of Connect SoCal 2024. The policies carry forward priorities that have been refined over several planning cycles to promote a multimodal transportation system and sustainable land use and development. Implementation of the policies at the regional and local level will address emerging issues facing the region and achieve the vision represented by Connect SoCal 2024.

The policies are meant to guide decision making for both SCAG and partner agencies to achieve a sustainable, equitable, and resilient future for the region. The policies are also intended to be used as a resource by CTCs or local jurisdictions to demonstrate alignment with the RTP/SCS in seeking resources from state or federal programs.

Per Government Code Section 65080(b)(2)(K), SCAG's SCS does not regulate the use of land, nor shall it be interpreted as superseding the exercise of the land use authority of cities and counties in the region. The guidance provided in the Plan's Regional Planning Policies is meant to support local jurisdictions in future General Plan updates to help in implementing the regional vision of Connect SoCal 2024.

Table 2-2, Connect SoCal 2024 Regional Planning Policies, provides the Regional Planning Policies that will guide the integration of land use and transportation planning to realize the vision and goals of the Plan. The table also indicates the PEIR section that is relevant to each Regional Planning Policy.

TABLE 2-2 Connect SoCal 2024 Regional Planning Policies

REGIONAL PLANNING POLICIES	PEIR SECTION(S) WHERE RELEVANT
Mobility	
System Preservation and Resilience	
1. Prioritize repair, maintenance, and preservation of the SCAG region's existing transportation assets first, following a "Fix-It-First" principle.	AES, AG, AQ, BIO, CR, EN, GHG, HAZ, HYD, LU, NOI, TCR, TRAN
2. Promote transportation investments that advance progress toward the achievement of asset management targets, including for National Highway System pavement and bridge condition and transit assets (rolling stock, equipment, facilities, and infrastructure).	TRAN
Complete Streets	
3. Pursue the development of complete streets that comprise a safe multi-modal network with flexible use of public rights-of-way for people of all ages and abilities using a variety of modes (e.g., people walking, biking, rolling, driving, taking transit).	LU, REC, TRAN
4. Ensure the implementation of complete streets that are sensitive to urban, suburban, or rural contexts and improve transportation safety for all, but especially vulnerable road users (e.g., older adults, children, pedestrians, bicyclists, etc.).	LU, TRAN
5. Facilitate the implementation of complete streets and curb space management strategies that accommodate and optimize new technologies and micromobility devices, first/last mile connections to transit, and last mile delivery.	AQ, EN, GHG, LU, TRAN
6. Support implementation of complete streets improvements in Priority Equity Communities*, and particularly with respect to Transportation Equity Zones*, to enhance mobility, safety, and access to opportunities.	AQ, EN, GHG, LU, TRAN
Transit and Multimodal Integration	
7. Encourage and support the implementation of projects both physical and digital that facilitate multimodal connectivity, prioritize transit and shared mobility, and result in improved mobility, accessibility, and safety.	AQ, EN, GHG, LU, TRAN
8. Support connections across the public, private, and nonprofit sectors to develop transportation projects and programs resulting in improved connectivity.	AQ, EN, GHG, LU, TRAN
9. Encourage residential and employment development in areas surrounding existing and planned transit/rail stations.	AQ, EN, GHG, LU, POP, TRAN
10. Support the implementation of transportation projects in Priority Equity Communities, and particularly with respect to Transportation Equity Zones, to enhance mobility, safety, and access to opportunities.	AQ, EN, GHG, LU, TRAN
11. Create a resilient transit and rail system by preparing for emergencies and the impacts of extreme weather conditions.	GHG, HAZ, HYD, TRAN
Transportation Demand Management	
12. Encourage the development of transportation projects that provide convenient, cost-effective and safe alternatives to single-occupancy vehicle travel (e.g., trips made by foot, on bikes, via transit, etc.).	LU, REC, TRAN
13. Encourage jurisdictions and TDM practitioners to develop and expand local plans and policies to promote alternatives to single occupancy vehicle travel for residents, workers, and visitors.	AQ, EN, GHG, LU, TRAN
14. Encourage municipalities to update existing (legacy) TDM ordinances by incorporating new travel modes and new technology, and by incorporating employment and residential sites of certain populations, for example employers who have less than 250 employees (below the 250 or more employees threshold identified in AQMD's Rule 2202).	AQ, EN, GHG, LU, TRAN

REGIONAL PLANNING POLICIES	PEIR SECTION(S) WHERE RELEVANT
Transportation System Management	
15. Pursue efficient use of the transportation system using a set of operational improvement strategies that maintain the performance of the existing transportation system instead of adding roadway capacity.	AES, AG, AQ, BIO, CR, EN, GHG, HAZ, HYD, LU, NOI, TCR, TRAN
16. Prioritize transportation investments that increase travel time reliability, including build-out of the regional express lanes network.	AQ, CR, BIO, EN, GHG, LU, NOI, TCR, TRAN
Technology Integration	
17. Support the implementation of technology designed to provide equal access to mobility, employment and economic opportunity, education, health and other quality of life opportunities for all residents within the SCAG region.	LU, POP, PS, REC, TRAN
18. Advocate for data sharing between the public and private sectors to effectively evaluate the services' benefits and impacts on communities while protecting data security and privacy.	N/A
19. Advocate for technology that is adaptive and responsive to ensure that it remains up to date to meet the evolving needs of users and stakeholders.	N/A
20. Promote technology that has the capacity to facilitate economic growth, improve workforce development opportunities, and enhance safety and security.	LU, POP, TRAN
21. Proactively monitor and plan for the development, deployment, and commercialization of new technology as it relates to integration with transportation infrastructure.	TRAN
Safety	
22. Eliminate transportation-related fatalities and serious injuries on the regional multimodal transportation system.	TRAN
23. Integrate the assessment of equity into the regional transportation safety and security planning process, focusing on the analysis and mitigation of disproportionate impacts on disadvantaged communities.	LU, TRAN
24. Support innovative approaches for addressing transit safety and security issues so that impacts to transit employees and the public are minimized and those experiencing issues (e.g., unhoused persons) are supported.	POP, TRAN
25. Support the use of transportation safety and system security data in investment decision-making, including consideration of new highway and transit/rail investments that would address safety and security needs.	LU, TRAN
Funding the System/User Pricing	
26. Promote stability and sustainability for core state and federal transportation funding sources.	N/A
27. Establish a user fee-based system that better reflects the true cost of transportation, provides firewall protection for new and existing transportation funds, and equitable distribution of costs and benefits.	N/A
28. Pursue funding tools that promote access to opportunity and support economic development through innovative mobility programs.	LU, TRAN
29. Promote national and state programs that include return-to-source guarantees while maintaining flexibility to reward regions that continue to commit substantial local resources.	N/A
30. Leverage locally available funding with innovative financing tools to attract private capital and accelerate project delivery.	N/A
31. Promote local funding strategies that maximize the value of public assets while improving mobility, sustainability, and resilience.	GHG, LU, TRAN

REGIONAL PLANNING POLICIES	PEIR SECTION(S) WHERE RELEVANT
Communities	
Priority Development Areas	
32. Promote the growth of origins and destinations, with a focus on future housing and population growth, in areas with existing and planned urban infrastructure including transit and utilities.	LU, POP, TRAN, UTIL
33. Promote the growth of origins and destinations in areas with a proclivity toward multi-modal options like transit and active transportation, to reduce single occupant vehicle dependency and vehicle miles traveled.	AQ, EN, GHG, LU, POP, TRAN
34. Seek to realize scale economies, or a critical mass, of jobs and destinations in areas across the region which can support non-SOV options and shorter trip distances, combined trips, and reduced vehicle miles traveled.	AQ, EN, GHG, LU, POP, TRAN
Housing the Region	
35. Encourage housing development in areas with access to important resources (economic, educational, health, social, and similar) and amenities to further fair housing access and equity across the region.	LU, POP, PS, REC, TRAN
36. Encourage housing development in transit-supportive and walkable areas to create more interconnected and resilient communities.	LU, POP, TRAN
37. Support local, regional, state, and federal efforts to produce and preserve affordable housing while meeting additional housing needs across the region.	LU, POP
38. Prioritize communities that are vulnerable to displacement pressures by supporting community stabilization and increasing access to housing that meets the needs of the region.	LU, POP
39. Promote innovative strategies and partnerships to increase homeownership opportunities across the region with an emphasis on communities who have been historically impacted by redlining and other systemic barriers to homeownership for people of color and other marginalized groups.	POP
40. Advocate for and support programs that emphasize reducing housing cost burden (for renters and homeowners), with a focus on the communities with the greatest need and vulnerabilities.	POP
41. Support efforts to increase housing and services for people experiencing homelessness across the region.	POP
15-Minute Communities	
42. Promote 15-minute communities as places with a mix of complementary land uses and accessible mobility options that align with and support the diversity of places (or communities) across the region where residents can either access most basic, day-to-day needs within a 15-minute walk, bike ride, or roll from their home or as places that result in fewer and shorter trips because of the proximity of complementary land uses.	AQ, EN, GHG, LU, TRAN
43. Support communities across the region to realize 15-minute communities through incremental changes that improve equity, quality of life, public health, mobility, sustainability and resilience, and economic vitality.	GHG, LU, POP, REC, TRAN
44. Encourage efforts that elevate innovative approaches to increasing access to neighborhood destinations and amenities through an array of people-centered mobility options.	LU, TRAN
Equitable Engagement and Decision-Making	
45. Advance community-centered interventions, resources, and programming that serve the most disadvantaged communities and people in the region, like Priority Equity Communities, with strategies that can be implemented in the short-to-long-term.	LU, POP, PS
46. Promote racial equity that is grounded in the recognition of the past and current harms of systemic racism and one that advances restorative justice.	N/A
47. Increase equitable, inclusive, and meaningful representation and participation of people of color and disadvantaged communities in processes.	LU

REGIONAL PLANNING POLICIES	PEIR SECTION(S) WHERE RELEVANT
Environment	
Sustainable Development	
48. Promote sustainable development and best practices that enhance resource conservation, reduce resource consumption, and promote resilience.	AG, BIO, CR, EN, GHG, LU, MIN, TRAN, UTIL, WF
49. Implement the Forecasted Regional Development Pattern of Connect SoCal 2024, consisting of household and employment projections that have been reviewed and refined by jurisdictions and stakeholders, to advance this shared framework for regional growth management planning.	LU, POP
50. Support communities across the region to advance innovative sustainable development practices.	AQ, EN, GHG, LU, UTIL
51. Recognize and support the diversity of communities across the region by promoting local place-making, planning, and development efforts that advance equity, mobility, resilience and sustainability.	EN, GHG, LU, TRAN, UTIL
Air Quality	
52. Reduce hazardous air pollutants and greenhouse gas emissions and improve the air quality throughout the region through planning and implementation efforts.	AQ, GHG, LU, TRAN
53. Support investments that reduce hazardous air pollutants and greenhouse gas emissions.	AQ, GHG
54. Reduce the exposure and impacts of emissions and pollutants and promote local and regional efforts that improve the air quality for vulnerable populations, including but not limited to Priority Equity Communities and the AB 617 Communities.	AQ, HAZ
Clean Transportation	
55. Accelerate the deployment of a zero-emissions transportation system and use near-zero emission technology to offer short term benefits where zero emissions solutions are not yet feasible or commercially viable.	AQ, GHG, TRAN
56. Promote equitable use of and access to clean transportation technologies so that all may benefit from them.	AQ, TRAN
57. Consider the full environmental life-cycle of clean transportation technologies including upstream production and end of life as an important part of meeting SCAG's objectives in economic development and recovery, resilience planning and achievement of equity.	GHG, HAZ, POP, UTIL
58. Maintain a technology neutral approach in the study of, advancement of, and, where applicable, investment in clean transportation technology.	N/A
Natural and Agricultural Lands Preservation	
59. Prioritize the climate mitigation, adaptation, resilience, and economic benefits of natural and agricultural lands in the region.	AG, BIO, GHG, LU
60. Support conservation of habitats that are prone to hazards exacerbated by climate change, such as wildfires and flooding.	BIO, HYD, WF
61. Support regional conservation planning and collaboration across the region.	AG, BIO, LU
62. Encourage the protection and restoration of natural habitat and wildlife corridors.	BIO
63. Encourage conservation of agricultural lands to protect the regional and local food supply and agricultural economy.	AG
64. Encourage policy development of the link between natural and agricultural conservation with public health.	AG, AQ, BIO, LU

REGIONAL PLANNING POLICIES	PEIR SECTION(S) WHERE RELEVANT
Climate Resilience	
65. Prioritize the most vulnerable populations and communities subject to climate hazards to help the people, places, and infrastructure that are most at risk for climate change impacts, recognizing that disadvantaged communities are often overburdened.	GHG, HYD, LU, UTIL, WF
66. Support local and regional climate and hazard planning and implementation efforts.	GHG, HYD, LU, UTIL, WF
67. Support nature-based solutions to increase regional resilience of the natural and built environment.	HYD, LU, WF
68. Promote sustainable water use planning, practices and storage that improve regional water security and resilience in a drier environment.	UTIL
69. Support an integrated planning approach to help local jurisdictions meet housing production needs in a drier environment.	LU, POP, UTIL
Economy	
Goods Movement	
70. Leverage and prioritize investments particularly where there are mutual co-benefits to both freight and passenger/commuter rail.	TRAN
71. Prioritize community and environmental justice concerns together with economic needs and support workforce development opportunities particularly around deployment of zero-emissions and clean technologies, and their supporting infrastructure.	AQ, EN, GHG, LU, POP, UTIL
72. Explore and advance the transition toward zero-emissions and clean technologies and other transformative technologies where viable.	AQ, EN, GHG
73. Advance comprehensive systems-level planning of corridor/supply chain operational strategies, integrated with road and rail infrastructure, and inland port concepts.	AQ, EN, GHG, TRAN
74. Ensure continued, significant investment in a safe, secure, clean, and efficient transportation system, including both highways and rail, to support the intermodal movement of goods across the region.	TRAN
Broadband	
75. Support ubiquitous regional broadband deployment and access, to provide the necessary infrastructure and capability for Smart Cities strategies and to ensure that the benefits of these strategies improve safety and are distributed equitably.	LU, TRAN
76. Develop networks that are efficient, scalable, resilient, and sustainable, to support transportation systems management and operations services and “tele-everything” strategies that reduce vehicle miles traveled, optimize efficiency, and accommodate future growth of regional economies.	AQ, EN, GHG, LU, TRAN
77. Encourage investments to provide access towards digital activities that support upwards educational, financial and economic growth.	LU, PS
78. Advocate for current, accurate data to identify opportunity zones and solutions to support the development of broadband services to community anchor institutions and local businesses.	N/A
79. Promote an atmosphere which allows for healthy competition and innovative solutions which are speed driven, while remaining technologically neutral.	N/A
80. Use a bottom-up approach to identify and support a community’s broadband needs.	N/A
Universal Basic Mobility	
81. Encourage partnerships and policies to broaden safe and efficient access to a range of mobility services to improve connections to jobs, education, and basic services.	LU, TRAN
82. Promote increased payment credentials for disadvantaged community members and transition of cash users to digital payment technologies to address payment barriers.	N/A

REGIONAL PLANNING POLICIES	PEIR SECTION(S) WHERE RELEVANT
Workforce Development	
83. Foster a positive business climate by promoting regional collaboration in workforce and economic development between cities, counties, educational institutions, and employers.	LU, POP
84. Encourage inclusive workforce development that promotes upward economic mobility.	N/A
85. Support entrepreneurial growth with a focus on underrepresented communities.	LU, POP
86. Foster a resilient workforce that is poised to effectively respond to changing economic conditions (market dynamics, technological advances, and climate change).	LU, POP
87. Inform and facilitate data-driven decision-making about the region’s workforce.	N/A
Tourism	
88. Consult and collaborate with state, county, and local agencies within the region charged with promoting tourism and transportation.	TRAN
89. Encourage the reduced use of cars by visitors to the region by working with state, county, and city agencies to highlight and increase access to alternative options, including transit, passenger rail, and active transportation.	AQ, EN, GHG, TRAN

Table Notes: N/A = Not Applicable or Not Available

AES = Aesthetics; AG = Agriculture and Forestry Resources; AQ = Air Quality; BIO = Biological Resources; CR = Cultural Resources; EN = Energy; GEO = Geology and Soils; GHG = Greenhouse Gas Emissions; HAZ = Hazards and Hazardous Materials; HYD = Hydrology and Water Quality; LU = Land Use and Planning; MIN = Mineral Resources; NOI = Noise; POP = Population and Housing; PS = Public Services; REC = Recreation; TRAN = Transportation; TCR = Tribal Cultural Resources; UTIL = Utilities and Service Systems; WF = Wildfire

IMPLEMENTATION STRATEGIES

The Implementation Strategies provided in **Table 2-3, Connect SoCal 2024 Implementation Strategies**, articulate priorities for SCAG to implement Connect SoCal 2024 by fulfilling or going beyond the related Regional Planning Policies. The SCAG related strategies represent near term efforts for the successful implementation of the Plan. These implementation strategies rely on partnership and support with agencies and decisions makers in the region. Table 2-3, Connect SoCal 2024 Implementation Strategies, below, lists the Implementation Strategies included in the Plan.

TABLE 2-3 Connect SoCal 2024 Implementation Strategies

IMPLEMENTATION STRATEGIES	PEIR SECTION(S) WHERE RELEVANT
MOBILITY	
System Preservation and Resilience	
Per federal requirements, establish and monitor regional targets for pavement and bridge conditions, and transit/rail assets, in coordination with Caltrans.	TRAN
Repair, operate, maintain, and preserve the SCAG region's transportation assets in a state of good repair.	TRAN
Develop a regional asset management program.	N/A
Evaluate projects submitted for inclusion in the FTIP and RTP/SCS according to contributions in achieving system performance targets.	TRAN

IMPLEMENTATION STRATEGIES	PEIR SECTION(S) WHERE RELEVANT
Complete Streets	
Support implementation of Complete Streets demonstrations (including those addressing curb space management) to accommodate and optimize new technologies and micromobility devices, first/last mile connections to transit, and last mile deliveries.	AQ, EN, GHG, LU, TRAN
Support community-led Complete Streets plans and projects, including those that take into account how to mitigate or adapt to climate change impacts (e.g., extreme heat).	GHG, LU
Encourage data-driven approaches to inform Complete Streets policies.	N/A
Develop a Complete Streets network and integrate Complete Streets in regional policies and plans, including considering impacts on equity areas.	LU, TRAN
Engage regional stakeholders in Complete Streets policy and plan development, implementation, and evaluation.	N/A
Provide leadership at the state and regional levels to promote Complete Streets.	N/A
Transit and Multimodal Integration	
* All Modes. Increase multimodal connectivity (e.g., first/last mile transit and airport connections). This includes planning for and developing mobility hubs throughout the SCAG region.	AQ, EN, GHG, LU, TRAN
All Modes. Enable a more seamless mobility experience through the implementation of Mobility as a Service (MaaS). This may include leveraging Cal-ITP's support and initiating open-loop payment demonstrations and testing shared product systems and post-payment solutions.	TRAN
* All Modes. Test, deploy, and scale new and shared mobility services, including micromobility (e.g., bike share, e-scooters, etc.) and microtransit pilot projects.	TRAN
* Transit/Rail. Expand the region's dedicated lanes network, including new bus rapid transit, dedicated bus lanes, express bus service on managed and express lanes, as well as the region's urban and passenger rail network, and transit/rail signal priority treatments. Improve transit/rail frequency, reliability, and fare and scheduling integration across operators.	TRAN
Transit/Rail. Improve transit/rail safety and security for riders.	TRAN
* Transit/Rail. Build residential development along high frequency transit corridors and around transit/rail facilities and centers through land use planning.	GHG, LU, POP, TRANS
* Active Transportation. Support community-led active transportation and safety plans, projects, and programs (e.g., Safe Routes to Schools). Partner with local jurisdictions on demonstrations and quick build projects through SCAG's Go Human initiative.	GHG, LU, PS, TRAN
* Active Transportation. Expand the region's networks of bicycle and pedestrian facilities, including active transportation corridors and greenways, connections to parks and the California Coastal Trail, and slow streets, open streets, and "school streets" treatments.	GHG, PS, REC, TRAN
Streets and Freeways. Reconnect communities by removing, retrofitting, or mitigating transportation facilities such as highways or railways that create barriers to community connectivity.	LU, TRAN
Transportation Demand Management	
* Incentivize and promote the development of more transportation management agencies/organizations (TMA/TMO).	N/A
* Facilitate partnerships and provide a forum between public and private sector TDM practitioners and stakeholders to develop and implement policies, plans, and programs to encourage the use of transportation alternatives.	AQ, EN, GHG, TRAN
* Develop and promote the use of a regional TDM data clearinghouse. Leverage data and TDM Toolbox best practices to identify cost-effective strategies.	N/A
* Collaborate to develop regional and localized marketing campaigns to promote TDM modes such as transit, carpool, walking, and biking to school.	N/A

IMPLEMENTATION STRATEGIES	PEIR SECTION(S) WHERE RELEVANT
Transportation System Management	
Develop regional Transportation System Management and Operations (TSMO) plan that integrates Intelligent Transportation System (ITS) strategies to maximize the efficiency of the existing and future transportation system.	AQ, EN, GHG, TRAN
Evaluate projects submitted for inclusion in RTP/SCS and FTIP for progress in achieving travel time reliability in the SCAG region.	TRAN
Technology Integration	
Develop a Smart Local jurisdictions Vision Plan and periodically revise the Technology Guiding Principles to inventory existing policies, evaluate emerging technologies, recommend best practices, implement ITS priorities, assess current trends and research, identify pilot opportunities, and improve transportation system safety and efficiency.	LU, TRAN
Provide local technical assistance grants which support innovative technology solutions that reduce VMT and GHG emissions. Pursue funding and partners to continue testing and deployment of emerging technologies.	GHG, TRAN
Implement ITS priorities to improve the safety and efficiency of the current transportation system.	AQ, EN, GHG, TRAN
Further develop a Regional Configuration Management process among county transportation commissions, Caltrans Districts, ports, and local governments to ensure consistent and compatible integration of ITS technologies and interoperable operations.	TRAN
Conduct regional assessment of current and planned Connected and Automated Vehicle (CAV) implementation in the SCAG region to determine opportunity zones for future deployments and develop toolkits and best practices for local jurisdictions.	AQ, EN, GHG, TRAN
Safety	
Integrate equity into regional safety and security planning process through the analysis of disproportionate impacts on disadvantaged communities and vulnerable roadway users like pedestrians, bicyclists, older adults, and young people.	TRAN
Promote implementation of data driven approaches to guide transportation safety and security investment decision-making, including development of High Injury Networks and innovative safety modeling tools.	TRAN
Provide leadership at the state and regional levels to promote transportation safety and security planning, including involvement on the statewide Strategic Highway Safety Plan (SHSP) Steering Committee and Executive Leadership Committee.	N/A
Evaluate projects submitted for inclusion in RTP/SCS and FTIP for progress in achieving safety targets in the SCAG region.	TRAN
Funding the System/User Pricing	
*Coordinate with local, regional, state and national partners to support transition to a mileage-based user fee.	GHG, TRAN
*Support local and regional partners on implementation of dynamic and congestion-based pricing programs, including facilitation of regional coordination.	N/A
* Continue development and support for job-center parking pricing, including through Smart Cities and Mobility Innovations SCP grant program.	N/A
* Continue to coordinate with regional partners to support build-out of regional express lanes network.	TRAN
Study and pilot transportation user fee programs and mitigation measures that increase equitable mobility.	TRAN
Conduct education and outreach work to support the public acceptance of user fees.	N/A

IMPLEMENTATION STRATEGIES	PEIR SECTION(S) WHERE RELEVANT
COMMUNITIES	
15-Minute Communities	
* Develop technical assistance resources and research that can support 15-minute communities across the various place types in the SCAG region by deploying strategies that include but are not limited to redeveloping underutilized properties, increasing access to neighborhood amenities, open space and urban greening, job centers, and multi-modal mobility options.	LU, PS, REC, TRAN
* Identify and pursue funding programs and partnerships for local jurisdictions across the region to realize 15-minute communities.	N/A
Housing the Region	
Provide technical assistance for jurisdictions to complete and implement their housing elements and support local governments and Tribal Entities to advance housing production.	LU, POP
Identify and pursue partnerships at the local, regional, state, and federal level to align utility, transit, and infrastructure investments with housing development and equitable outcomes across the region.	LU, TRAN, UTIL
Identify innovative homeownership models that can reduce costs and increase housing production in the region and identify strategies to engage households of color and communities that are underrepresented as homeowners.	POP
Develop and deploy community stabilization (anti-displacement) resources that can be utilized to address displacement pressures, such as preservation and tenant protections, for communities across the region and Affirmatively Further Fair Housing.	POP
Priority Development Areas	
Support local jurisdictions and implementing agencies' plans and strategies to promote plans and projects within PDAs by providing awards, grants, and technical assistance.	LU
Develop housing in areas with existing and planned infrastructure, availability of multi-modal options, and where a critical mass of activity can promote location efficiency.	LU, POP, TRAN, UTIL
Equitable Engagement and Decision-Making	
Develop an Equity Assessment Tool that can be utilized by SCAG in program development and delivery and a complementary tool that can be incorporated into local assistance/subrecipient programming and delivery.	N/A
Develop an agencywide Community-Based Organization (CBO) Partnering Strategy that outlines tools and resources for partnering with CBOs to increase inclusive and equitable engagement opportunities.	N/A
Develop a Pilot Program that prioritizes comprehensive solutions, capacity building, engagement, planning, and investment in the most underserved communities in the region (one in each county in the pilot phase).	N/A
Develop a resource guide and training for equitable and culturally relevant stakeholder engagement for public agencies, including SCAG, that recognizes community contexts and histories, and existing community resources and engagement opportunities.	N/A
Aligned with appropriate State and Federal partners, identify, and utilize equity-centered measures to track outcomes, progress, and lessons learned on Connect SoCal implementation.	N/A
ENVIRONMENT	
Sustainable Development	
Monitor and pursue funding opportunities that can foster sustainable and equitable land use and development across the SCAG region and explore the feasibility of creating a pilot grant program to support local planning and/or implementation.	LU
Pursue resources that can support the development of water & energy-efficient building practices and efficiencies, including green infrastructure.	AQ, EN, GHG, UTIL

IMPLEMENTATION STRATEGIES	PEIR SECTION(S) WHERE RELEVANT
Air Quality	
Coordinate with local, regional, state, and federal partners to meet federal and state ambient air quality standards and improve public health.	AQ
Support local and regional partners by identifying funding opportunities that will help achieve greenhouse gas emissions reductions and providing technical assistance and resources when available.	GHG, TRAN
Clean Transportation	
Maintain a robust Clean Technology Program that focuses on planning, research and evaluation, stakeholder support, and advocacy.	AQ, EN, GHG
Share information and provide technical assistance to local jurisdictions and operators on opportunities to upgrade their fleets and accelerate deployment of supporting infrastructure.	AQ, EN, GHG, TRAN
Investigate how zero-emissions vehicles can strengthen our resilience through vehicle to grid technologies or other opportunities where batteries can be used to enhance capacity of renewable energy sources.	AQ, EN, GHG, TRAN
Investigate opportunities to install charging stations that can be used by Multi-Unit Dwellers that don't have the same opportunities for charging as single-family homeowners.	EN, GHG, LU, TRAN
Facilitate development of EV charging infrastructure through public-private partnerships.	EN, GHG, TRAN
* Assist local jurisdictions in developing an incentive program to further adoption of zero-emissions passenger vehicles.	AQ, GHG
Support the deployment of clean transit and technologies as part of the CARB innovative clean technology (ICT) rule and to reduce greenhouse gas emissions.	AQ, EN, GHG, TRAN
Natural and Agricultural Lands Preservation	
Identify and leverage resources for research, policies, and programs to conserve and restore natural and agricultural lands.	AG, BIO, LU
Explore opportunities to increase and quantify the carbon sequestration potential and resilience benefits of natural and agricultural lands and pursue funding for implementation and demonstration projects.	AG, BIO, GHG, HYD, WF
Work with implementation agencies to support, establish, or supplement regional advance mitigation programs (RAMP) for regionally significant transportation projects to mitigate environmental impacts and reduce per-capita vehicle miles traveled (VMT), and provide mitigation opportunities for regionally significant projects through the Intergovernmental Review Process.	AQ, BIO, CR, EN, GHG, LU, TRAN
Continue efforts to support partners to identify priority conservation areas, including habitat, wildlife corridors, and natural and agricultural lands, for permanent protection.	AG, BIO, LU
Support the integration of nature-based solutions into implementing agency plans to address urban heat, organic waste reduction, habitat and wildlife corridor restoration, greenway connectivity, and similar efforts.	BIO, LU, UTIL
Climate Resilience	
Support use of systems-based risk-management methods and tools to help implementation agencies identify and reduce resilience risks for vulnerable communities.	AQ, GHG, HYD, LU, WF
Develop partnerships and programs to support local and regional climate adaptation, mitigation, and resilience initiatives.	AQ, GHG, HYD, LU, WF
Provide local and regional partners with resources, education, and trainings to identify and protect areas vulnerable to climate effects and other resilience shocks and stressors, particularly for low income and communities of color.	AQ, GHG, HYD, LU, WF
Support implementing agencies' efforts to include climate-ready home hardening strategies in housing construction to minimize the potential loss of housing units stemming from climate-related hazards.	AQ, GHG, HYD, LU, WF

IMPLEMENTATION STRATEGIES	PEIR SECTION(S) WHERE RELEVANT
Support integration of climate vulnerability assessments into infrastructure planning and delivery for implementing agencies.	GHG, HYD, LU, UTIL, WF
Collaborate with partners to foster adoption of alternative groundwater recharge technologies, stormwater capture systems, urban cooling infrastructure and greywater usage systems that can reduce water demand and/or increase water supply.	GHG, HYD, UTIL
ECONOMY	
Goods Movement	
Leverage the Last Mile Freight Program (LMFP) to develop and implement operational concepts with a core focus on last-mile delivery strategies across urban and rural communities.	TRAN
Manage the implementation and transition to near zero and zero-emissions technologies for medium and heavy-duty vehicles and supporting infrastructure.	AQ, EN, GHG, TRAN
Facilitate the development of integrated rail partnerships between passenger/commuter rail and private rail operators and public agencies to advance investment opportunities.	TRAN
Engage communities throughout the SCAG region on environmental justice concerns, economic needs, and workforce development priorities.	N/A
Perform a complete update to the SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy, including assessment of innovative strategies and concepts.	N/A
Continue to coordinate with federal and state partners on goods movement planning efforts, including the Last Mile Freight Program (LMFP), to position the SCAG region for further funding opportunities.	TRAN
Broadband	
Implement "Dig-Once Dig-Smart" policies to install broadband, EV charging station, and Smart Cities related infrastructure whenever highway/roadway improvements occur.	AQ, CR, EN, GHG, NOI, TCR
Promote the use of a regional or statewide universal permit, ordinance and fee for expedited broadband, EV charging, and smart cities infrastructure deployment.	N/A
Secure grant funding for underserved local jurisdictions for broadband infrastructure development.	N/A
Universal Basic Mobility	
Form partnerships with affordable housing developers in the region to subsidize a range of transportation services, improving livability, lowering transportation costs, and expanding travel choices and access to opportunity for low-income households.	LU, POP, TRAN
Continue to develop understanding of low-income travel patterns and needs, and the impact of shocks (e.g., COVID and telework adoption) on low-income travel.	TRAN
Pursue and encourage outreach opportunities with low-income populations, particularly drivers.	N/A
Workforce Development	
Provide technical assistance to help local jurisdictions realize their economic and workforce development goals.	N/A
Encourage the growth of, and equitable access to, family-supporting jobs throughout the region.	LU, POP, TRAN
Develop resources for understanding, analyzing, and communicating complex regional economic and workforce data.	N/A

IMPLEMENTATION STRATEGIES	PEIR SECTION(S) WHERE RELEVANT
Tourism	
Initiate and organize regular meetings between agencies that manage travel and tourism in the region and state to better inform planning efforts and to align with travel and tourism needs, particularly with upcoming large-scale events such as the 2026 FIFA World Cup and 2028 Summer Olympics.	N/A

Table Notes:

* SCS GHG reduction strategy. N/A = Not Applicable or Not Available

AES = Aesthetics; AG = Agriculture and Forestry Resources; AQ = Air Quality; BIO = Biological Resources; CR = Cultural Resources; EN = Energy; GEO = Geology and Soils; GHG = Greenhouse Gas Emissions; HAZ = Hazards and Hazardous Materials; HYD = Hydrology and Water Quality; LU = Land Use and Planning; MIN = Mineral Resources; NOI = Noise; POP = Population and Housing; PS = Public Services; REC = Recreation; TRAN = Transportation; TCR = Tribal Cultural Resources; UTIL = Utilities and Service Systems; WF = Wildfire

2.7 FINANCIAL PLAN

In accordance with federal fiscal constraint requirements, Connect SoCal 2024 is a financially constrained Plan. Connect SoCal 2024 identifies the amount of funding that is reasonably expected to be available to build, operate, and maintain the region’s surface transportation system through the forecast horizon year of 2050. As shown in **Table 2-4, Connect SoCal 2024 Revenue Sources (in Billions)**, the financial plan’s forecast of revenue totals over \$750 billion from both core and new, reasonably available resources.

TABLE 2-4 Connect SoCal 2024 Revenue Sources (in Billions)

REVENUE SOURCE		AMOUNT
Local	Sales Tax:	\$255.2
	<ul style="list-style-type: none"> <li>Local Option Sales Tax Measures 	\$206.6
	<ul style="list-style-type: none"> <li>Transportation Development Act (TDA)—Local Transportation Fund 	\$48.5
	Transit Farebox Revenue	\$29.7
	Highway Tolls (in core revenue forecast)	\$27.3
	Mitigation Fees	\$5.7
	Other Local Sources	\$38.4
		<i>Local Revenue Subtotal</i>
State	State Transportation Improvement Program (STIP):	\$6.9
	<ul style="list-style-type: none"> <li>Regional Transportation Improvement Program (RTIP) 	\$5.7
	<ul style="list-style-type: none"> <li>Interregional Transportation Improvement Program (ITIP) 	\$1.1
	State Highway Operation and Protection Plan (SHOPP)	\$70.4
	Highway Users Tax Account (HUTA)	\$42.2
	Road Maintenance and Rehabilitation Account (RMRA)	\$33.8
	State Transit Assistance Fund (STA)	\$18.8
	Cap-and-Trade Auction Proceeds	\$1.8
		Other State Sources
	<i>State Revenue Subtotal</i>	<i>\$189.0</i>

REVENUE SOURCE		AMOUNT
Federal	Federal Transit:	\$24.9
	• Federal Transit Formula	\$16.7
	• Federal Transit Non-Formula	\$8.2
	Federal Highway & Other:	\$17.6
	• Congestion Mitigation and Air Quality (CMAQ)	\$5.1
	• Surface Transportation Block Grant (STBG)	\$6.6
	• Other Federal Sources	\$5.9
<i>Federal Revenue Subtotal</i>		<i>\$42.5</i>
New Reasonably Available	Federal Gas Excise Tax Adjustment	\$7.6
	Mileage-Based User Fee (Replacement)	\$48.0
	Federal Credit Assistance; Bond Proceeds	\$2.2
	Private Equity Participation	\$9.3
	Local Road Charge Program	\$92.2
	Value Capture Strategies	\$3.0
	<i>New Revenue Subtotal</i>	
Revenue Total		\$750.1

Source: SCAG 2023b

Table Note: Numbers may not sum to total due to rounding.

As shown in **Table 2-5, Connect SoCal 2024 Expenditure (in Billions)**, the Plan’s expenditures total approximately \$750 billion.

TABLE 2-5 Connect 2024 SoCal Expenditure (in Billions)

EXPENDITURE TYPE	AMOUNT
Capital Projects and Other Programs	
Arterials	\$25.2
Goods Movement (including Grade Separations)	\$65.4
High-Occupancy Vehicle/Express Lanes	\$11.4
Mixed-Flow and Interchange Improvements	\$11.9
Transportation System Management (Including ITS)	\$11.9
Transit	\$52.5
Passenger Rail	\$45.0
Active Transportation	\$29.2
Transportation Demand Management	\$16.9
Other*	\$10.9
<i>Subtotal Capital Projects and Other Programs</i>	
	<i>\$280.2</i>

EXPENDITURE TYPE	AMOUNT
Operations and Maintenance	
State Highways	\$75.4
Transit	\$244.5
Passenger Rail	\$42.6
Regionally Significant Local Streets and Roads**	\$87.7
<i>Subtotal Operations and Maintenance</i>	<i>\$450.1</i>
<i>Debt Service</i>	<i>\$19.7</i>
Cost Total	\$750.1

Source: SCAG 2023b

Table Notes:

Numbers may not sum to total due to rounding.

* Includes Mobility Equity Fund, Regional Advance Mitigation, and Others

** Includes \$8.8 billion for active transportation in addition to capital project investment of \$29.2 billion for a total of \$38 billion for active transportation improvements.

2.8 PERFORMANCE MEASURES

Federal policy also requires that SCAG set performance measures and targets in Connect SoCal 2024. As required under MAP-21, in 2016 and 2017 the Federal Highway Administration (FHWA) issued national performance measures and guidelines for use in the setting of statewide and regional performance targets. The FHWA rule-making process established a four-year performance target setting and reporting cycle, with a two-year mid-term progress evaluation point. SCAG coordinates closely with Caltrans in the establishment of specific performance targets for the state and for our region in the various transportation performance areas established under MAP-21. These targets provide quantifiable objectives to achieve each measure during the performance period.

The Plan has several performance measures that are closely tied to its vision, goals and guiding policies. These ensure that the implementation of the Plan moves the SCAG region closer to achieving these vision, goals and policies. Plan performance is measured under 25 categories as shown in **Table 2-6, Connect SoCal 2024 Plan Performance Assessment Measures**. These performance measures are built upon but updated from those developed for the 2020 RTP/SCS to ensure that there is consistency when tracking and assessing the region’s performance and whether this is meeting and exceeding federal and state requirements. It is also intended to help quantify regional goals, estimate potential impacts of proposed investments, and evaluate progress over time. Recognizing that the proposed land use and transportation strategies are expected to have impacts beyond those that are exclusively transportation-related, the health outcome was first introduced in the 2012 RTP/SCS and was also addressed in the 2016 and 2020 RTP/SCSs. These health-related measures are tied with the proposed transportation investments in transit, and transportation, more walkable communities, and land use strategies, which focus new housing and employment in the region’s PDAs, including TPAs, livable corridors neighborhood mobility areas, and SOIs.

TABLE 2-6 Connect SoCal 2024 Plan Performance Assessment Measures

PERFORMANCE MEASURE	CONNECT SOCIAL GOAL AREA	DESCRIPTION
Access to Jobs	Mobility	Share of regional jobs accessible within 30 minutes travel time by automobile & within 45 minutes by transit during peak travel periods.
Major Destination Accessibility	Mobility	Share of major destinations (shopping, schools, & healthcare) accessible within specified travel times by automobile & by transit during peak travel periods.
Average Commute Trip Distance	Mobility	Average distance traveled for work trips, including trip lengths ten miles or less & 25 miles or less.
Travel Mode Share	Mobility	Share of total work trips & all trips by travel mode: auto, transit, non-motorized, & other.
Person Hours of Delay by Facility Type	Mobility	Excess travel time resulting from the difference between a reference speed & actual speed (mixed flow, HOV, & arterials).
Person-Delay per capita	Mobility	Daily amount of delay experienced per capita due to traffic congestion.
Truck Delay by Facility Type	Mobility	Excess heavy duty truck travel time based on difference between reference speed & actual speed (highways/arterials).
Average Travel Time	Mobility	Average travel time (work & non-work trips) by mode: single occupancy vehicle (SOV), high-occupancy vehicle (HOV), walk, bike, & transit.
Travel Time Distribution by Mode	Mobility	Travel time distribution by mode: single occupancy vehicle (SOV), high-occupancy vehicle (HOV), & transit.
Transit Boardings per capita	Mobility	Number of annual transit boardings per capita.
Percent of Trips Less than 3 Miles	Communities	Share of work & non-work trips less than three miles in length.
Share of Households in Priority Development Areas (PDAs)	Communities	Percent of total regional households located within PDAs.
Physical Activity-Related Public Health Incidence & Costs	Communities	Public health incidences & costs related to lack of physical activity.
Air Pollution-Related Public Health Incidence & Costs	Communities	Public health incidences & costs related to air pollution.
Park Accessibility	Communities	Share of park acreage reachable within 30 minutes by auto & 30 minutes by transit.
Vehicle Miles Traveled (VMT) per capita	Environment	Daily vehicle miles traveled (VMT) per capita.
Greenhouse Gas (GHG) Emissions	Environment	Percent reduction in GHG emissions per capita (from 2005 levels).
Land Conversion to Urban Purposes	Environment	Total square miles of greenfield & rural lands converted to urban use.
Criteria Air Pollutant Emissions	Environment	ROG, CO, NOx, PM10, & PM2.5 emissions (tons per day).
Energy Consumption	Environment	Energy (electricity, natural gas, vehicle fuel) consumption per capita.
Water Consumption	Environment	Urban water consumption per capita.
New Jobs Added Due to Transportation System Investments	Economy	Number of new jobs added to regional economy directly related to plan transportation system investments.
Share of Employment in Priority Development Areas (PDAs)	Economy	Percent of total regional employment located within PDAs.

PERFORMANCE MEASURE	CONNECT SOCIAL GOAL AREA	DESCRIPTION
New Jobs Added Due to Improved Regional Economic Competitiveness	Economy	Number of new jobs added to the regional economy due to improved transportation system conditions.
Transportation System Investment Benefit/Cost Ratio	Economy	Ratio of monetized user & social benefits to transportation system investment costs.

Source: SCAG 2023d

As stated previously, the Plan is constrained by expected transportation revenues, household and employment growth. The Plan creates a list of transportation projects that are eligible for future funding but does not program funds to specific transportation projects (see Project List Technical Report of the Plan). While the Plan identifies transportation and land use strategies that accommodate expected growth and improve the quality of life for existing and future residents, it does not change local land use policies. Individual jurisdictions retain all local land use authority.

2.9 INTENDED USES OF THE PEIR

In compliance with CEQA (Public Resources Code Section 21000 et seq.), this PEIR describes the potential environmental impacts of the Plan. This PEIR is designed to inform SCAG’s Regional Council, as well as responsible agencies, trustee agencies, interested agencies/organizations and persons, and the public of the potential environmental effects of the Plan and its identified alternatives. SCAG is the Lead Agency for environmental review of this PEIR and intends to use this PEIR as part of its review and approval of the Plan.

While individual transportation projects are included in the Plan, this PEIR is programmatic in nature and the analysis considers impacts that would reasonably be expected in conjunction with the transportation investments and land use development patterns envisioned in the Plan; the potential for significant and unavoidable impacts after the consideration of feasible mitigation measures; and a range of feasible alternatives. Project-level analysis will be prepared by implementing agencies, serving as a lead agency under CEQA, with the authority and principal responsibility for approving or carrying out the individual projects. These agencies include the six counties and 191 cities in the region. Other project implementing agencies may include public transit providers, other public agencies such as joint power authorities, air districts, water districts, colleges and universities, and Caltrans, among others.

It is the intent of SCAG that lead agencies and others may use at their discretion the information contained within the PEIR in order to facilitate “tiering” of subsequent environmental documentation of projects in the region. Such projects may include:

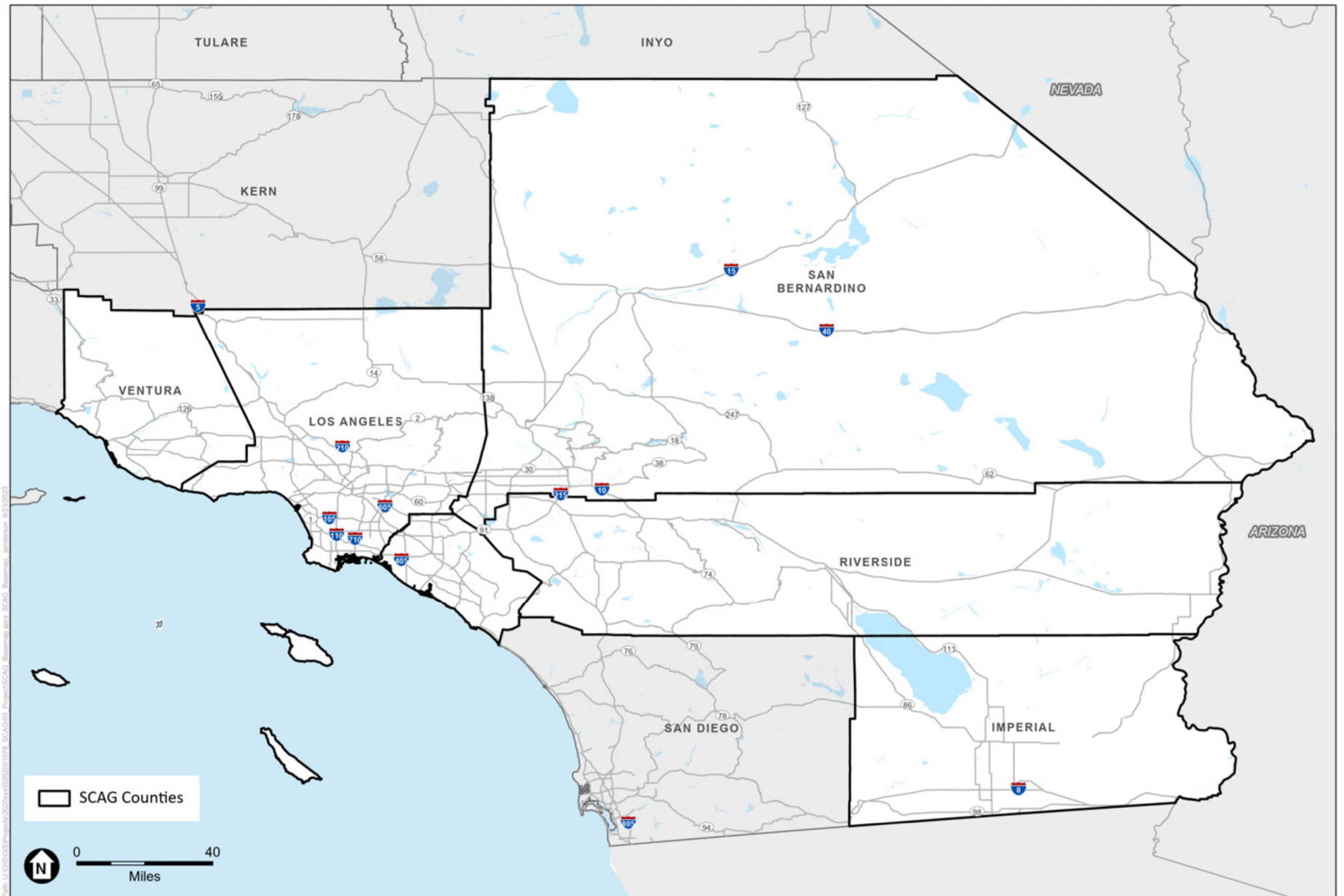
- Transportation projects;
- Planning projects (e.g., General Plans, Specific Plans, etc.); and
- Development projects including residential, mixed-use, employment center and transit priority projects that are found to be consistent with the SCS by their lead agencies.

As described in more detail in Chapter 1.0, *Introduction*, for projects that may be eligible for CEQA streamlining, applicable mitigation measures from this PEIR can and should be considered for incorporation into those projects as feasible and appropriate.

2.10 LIST OF PERMITS OR OTHER APPROVALS REQUIRED TO IMPLEMENT THE PROJECT

Connect SoCal 2024 requires a federal approval of transportation conformity determination under the CAA Section 176(c). The FHWA and the Federal Transit Administration (FTA) make the final determination of transportation conformity on the RTP portion. An FHWA/FTA final transportation conformity determination is required for the Plan and needed by June 5, 2024, pursuant to the U.S. Environmental Protection Agency's (USEPA) Transportation Conformity Regulations in 40 CFR Parts 51 and Section 93⁴, and USDOT's Final Rule on Statewide and Metropolitan Planning in 23 CFR Part 450. The required transportation conformity analysis that is submitted must indicate that all four tests required for transportation conformity have been met (see Transportation Conformity Analysis Technical Report of the Plan). Based on review by FHWA and FTA, and after consultation with the USEPA Region IX office, FHWA/FTA is expected to make a final determination that the Plan conforms to the applicable State Implementation Plans. Furthermore, under SB 375, after adoption of the Plan, SCAG shall submit the SCS portion of the Plan to CARB for review. Review by CARB shall be limited to acceptance or rejection of SCAG's determination that the strategy submitted would, if implemented, meet the region's 19 percent per capita GHG reduction target for year 2035.

⁴ The USEPA Transportation Conformity Regulations of 40 CFR Parts 51 and Section 93 contain additional criteria for project-level conformity determinations.

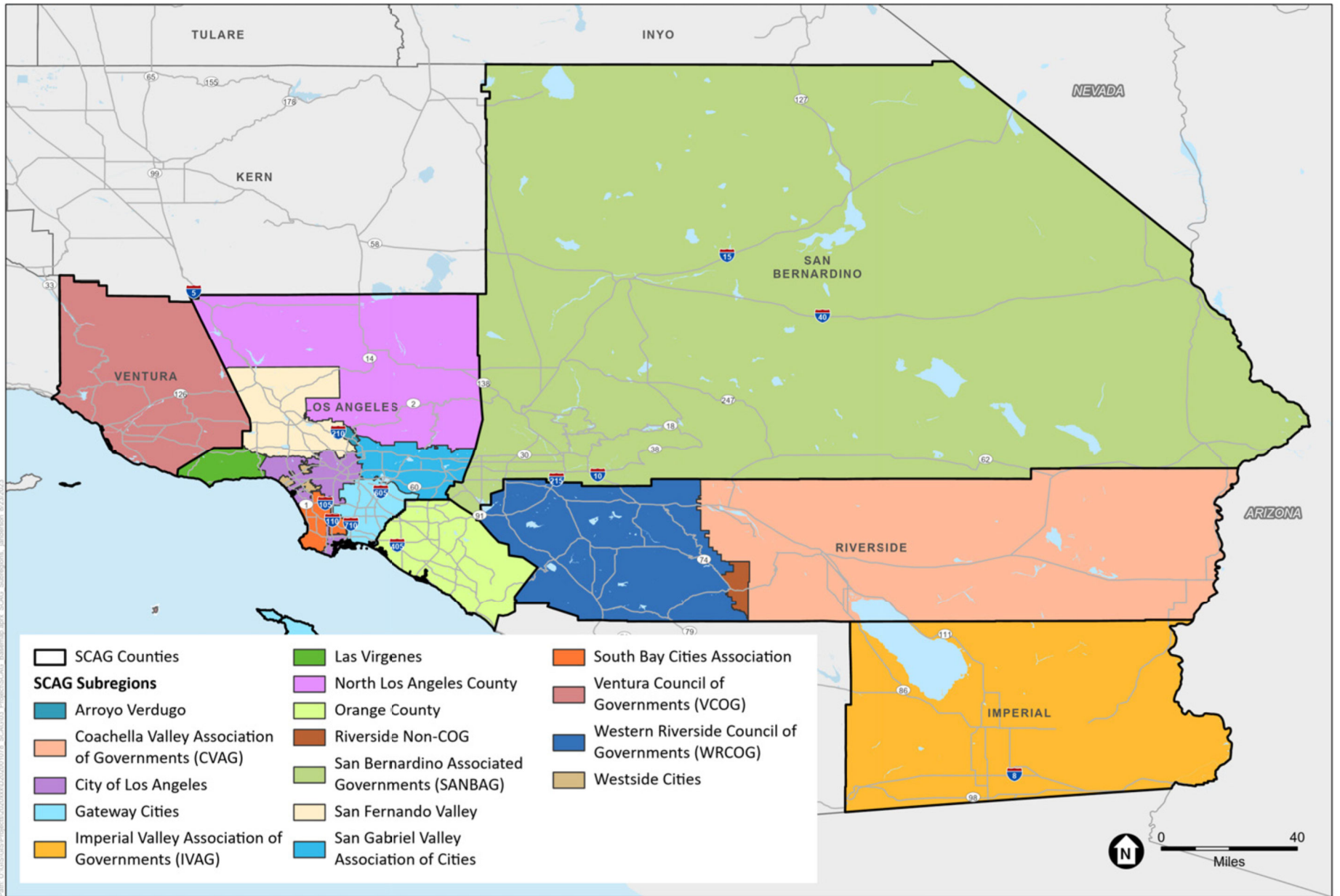


SOURCE: ESA, 2023

Connect SoCal 2024 PEIR

Map 2-1
SCAG Region



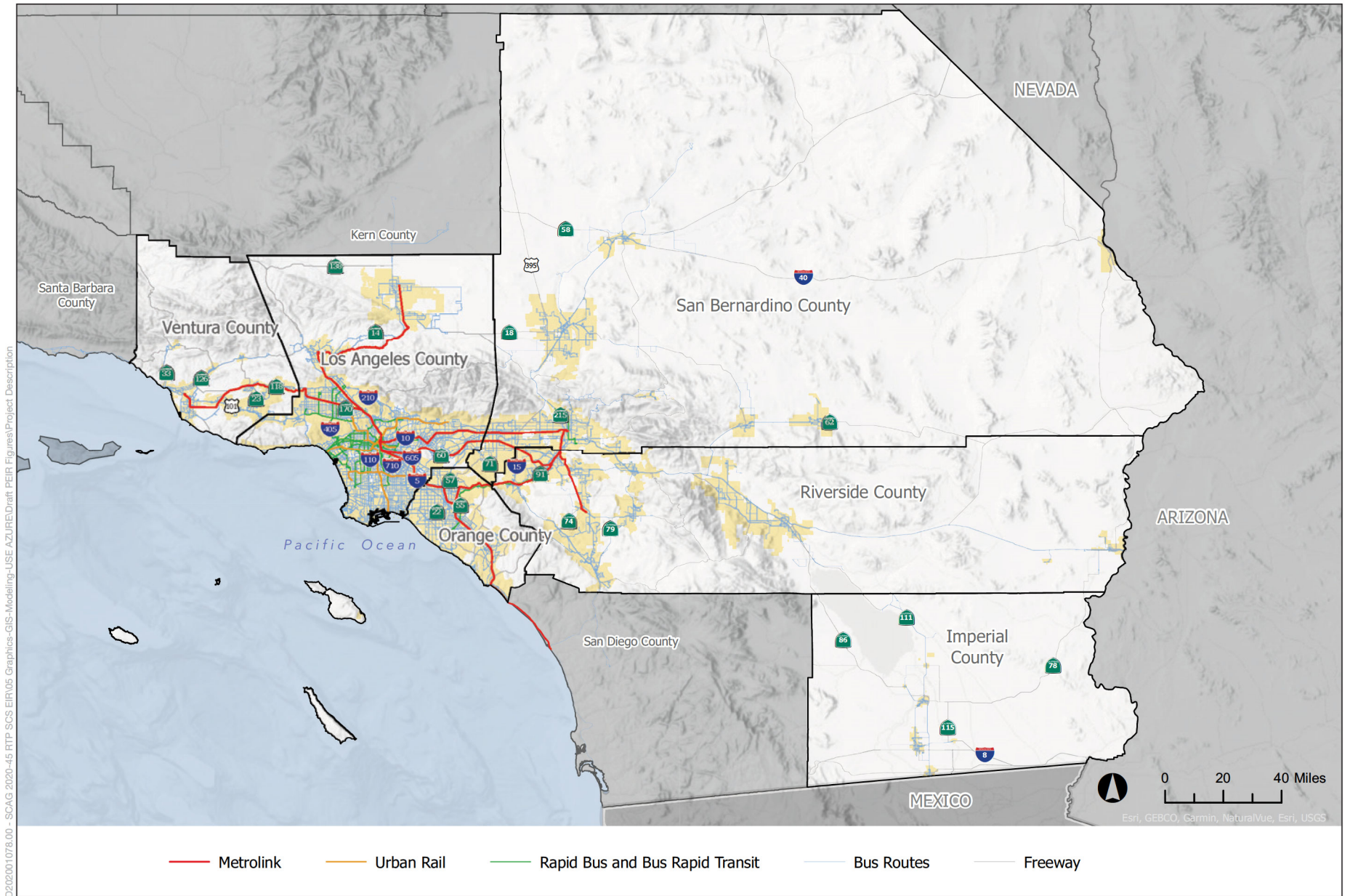


SOURCE: ESA, 2023

Connect SoCal 2024 PEIR

Map 2-2
SCAG Subregions



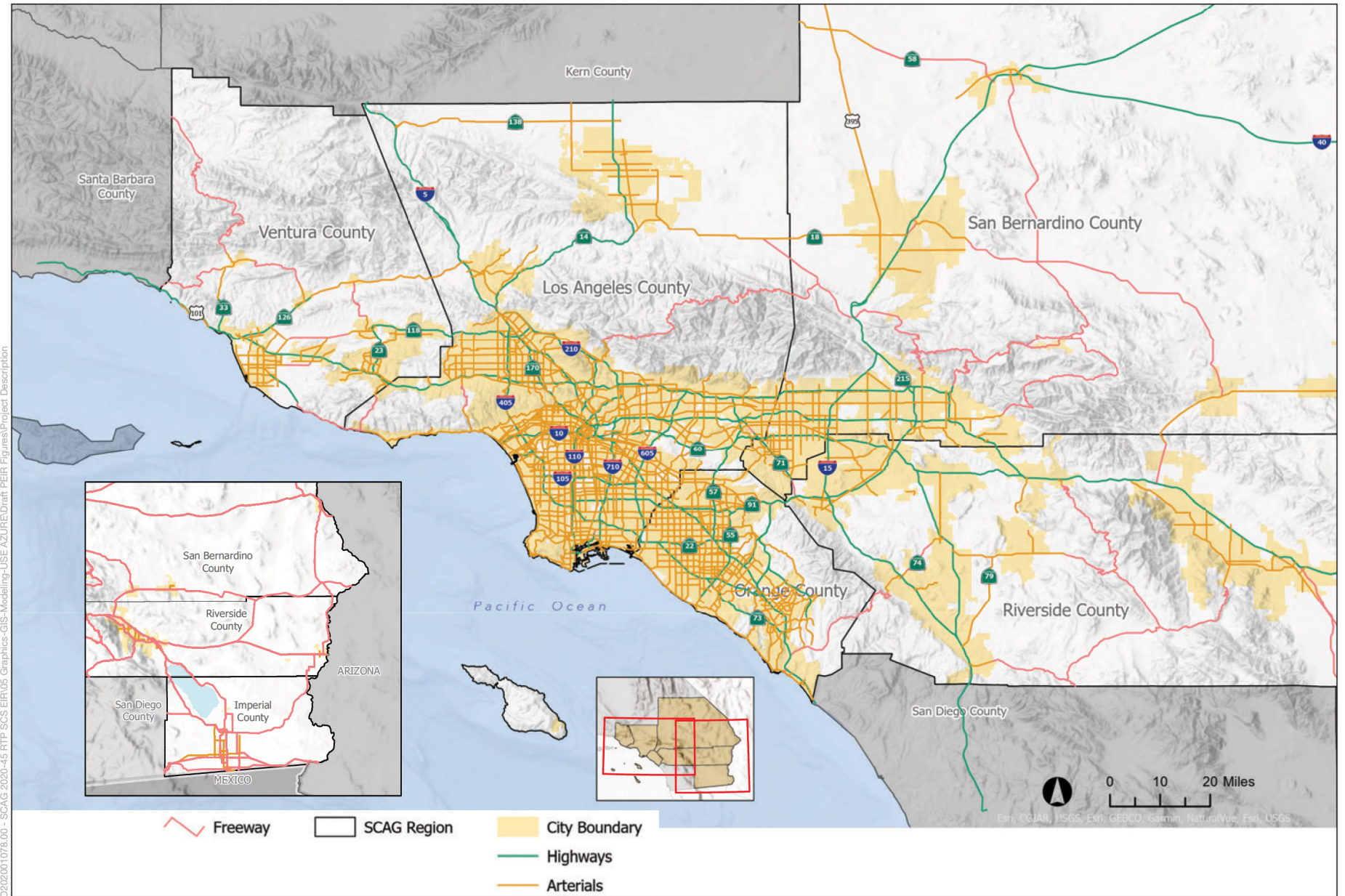


SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map 2-3
Existing Transit Network, 2019





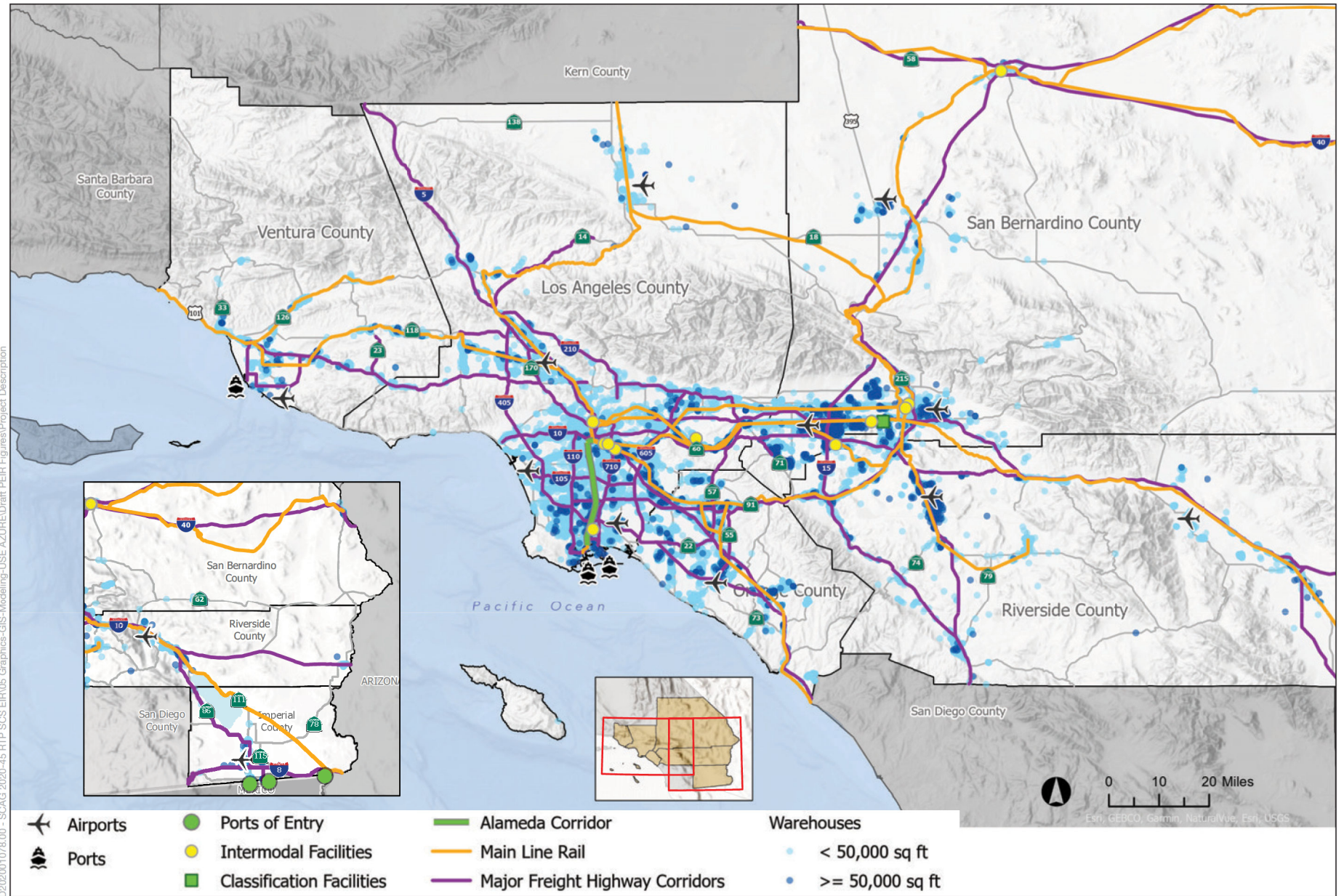
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SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map 2-4
Existing Arterial System, 2019



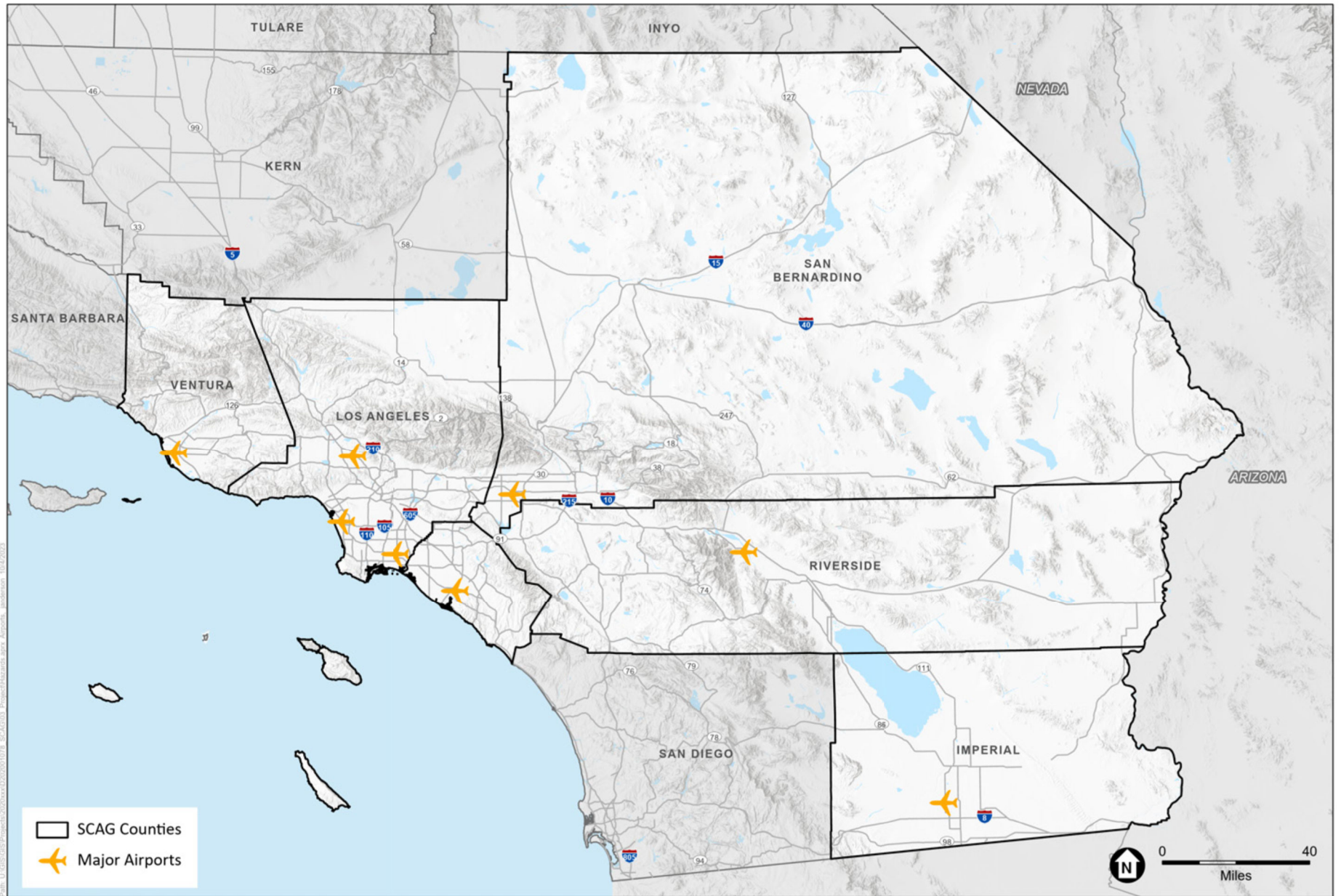


SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map 2-5
Existing Regional Goods Movement System





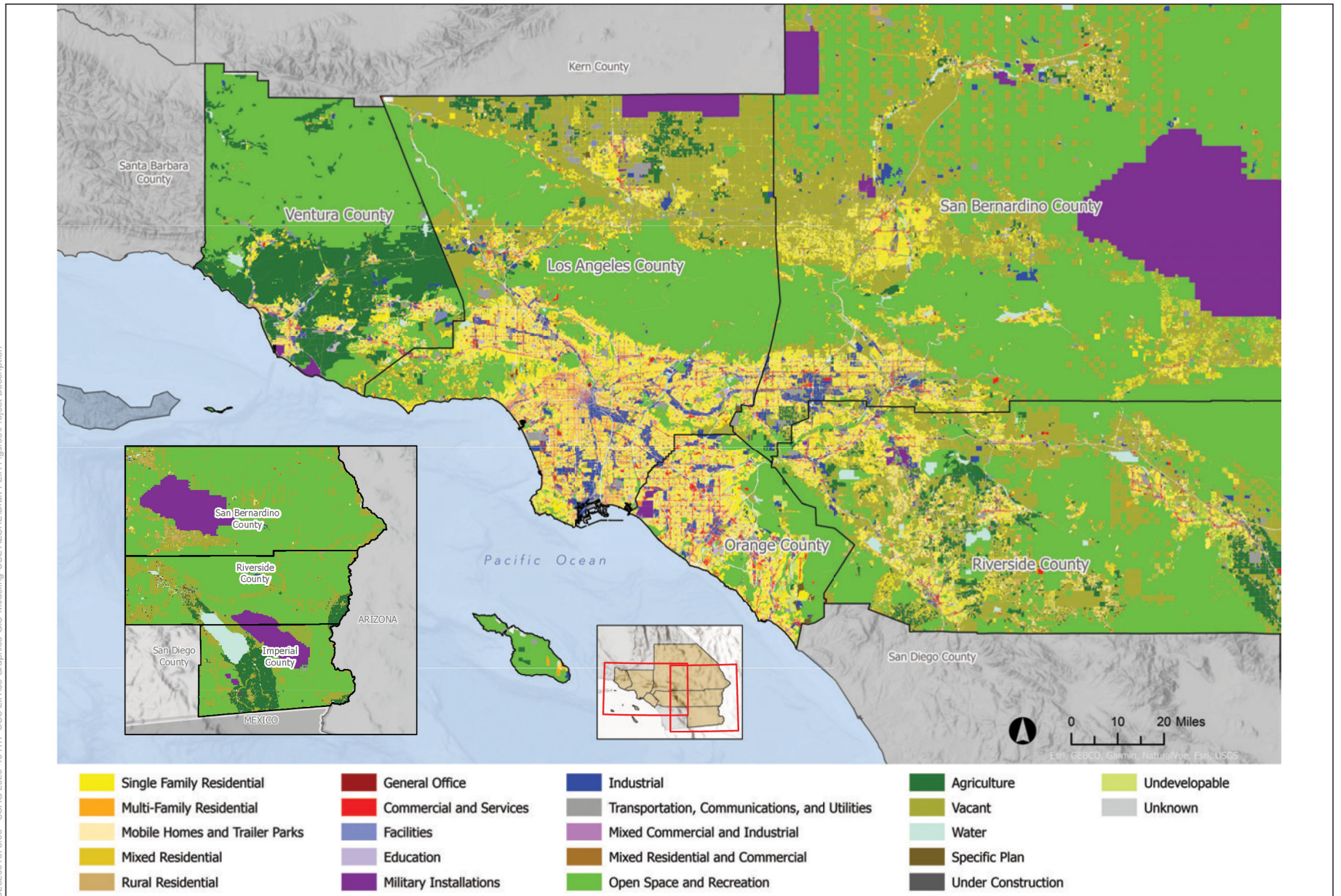
SOURCE: ESRI, 2021

Connect SoCal 2024 PEIR

Map 2-6
Major Airports in SCAG Region



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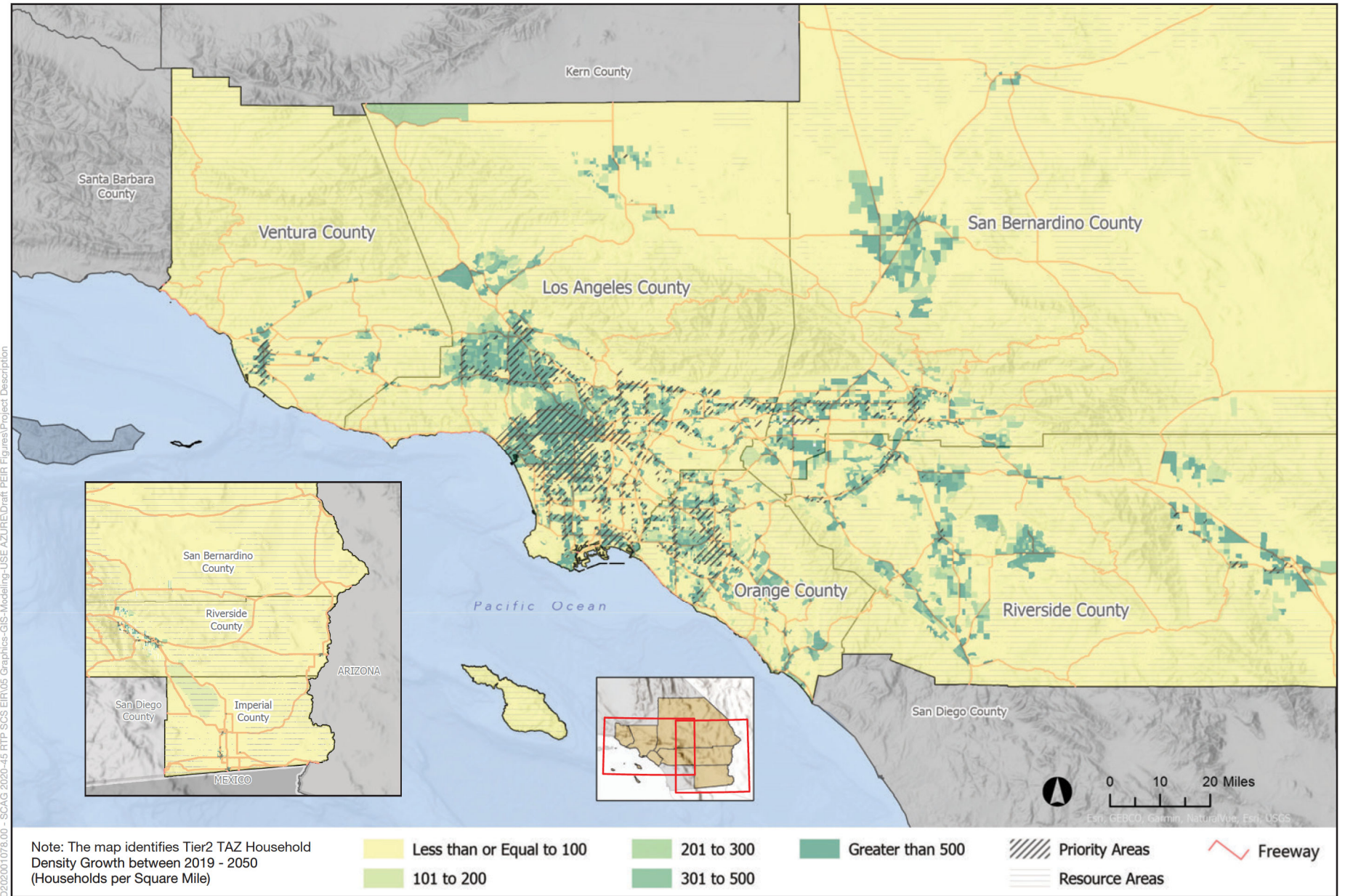


SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map 2-7
Existing Land Uses



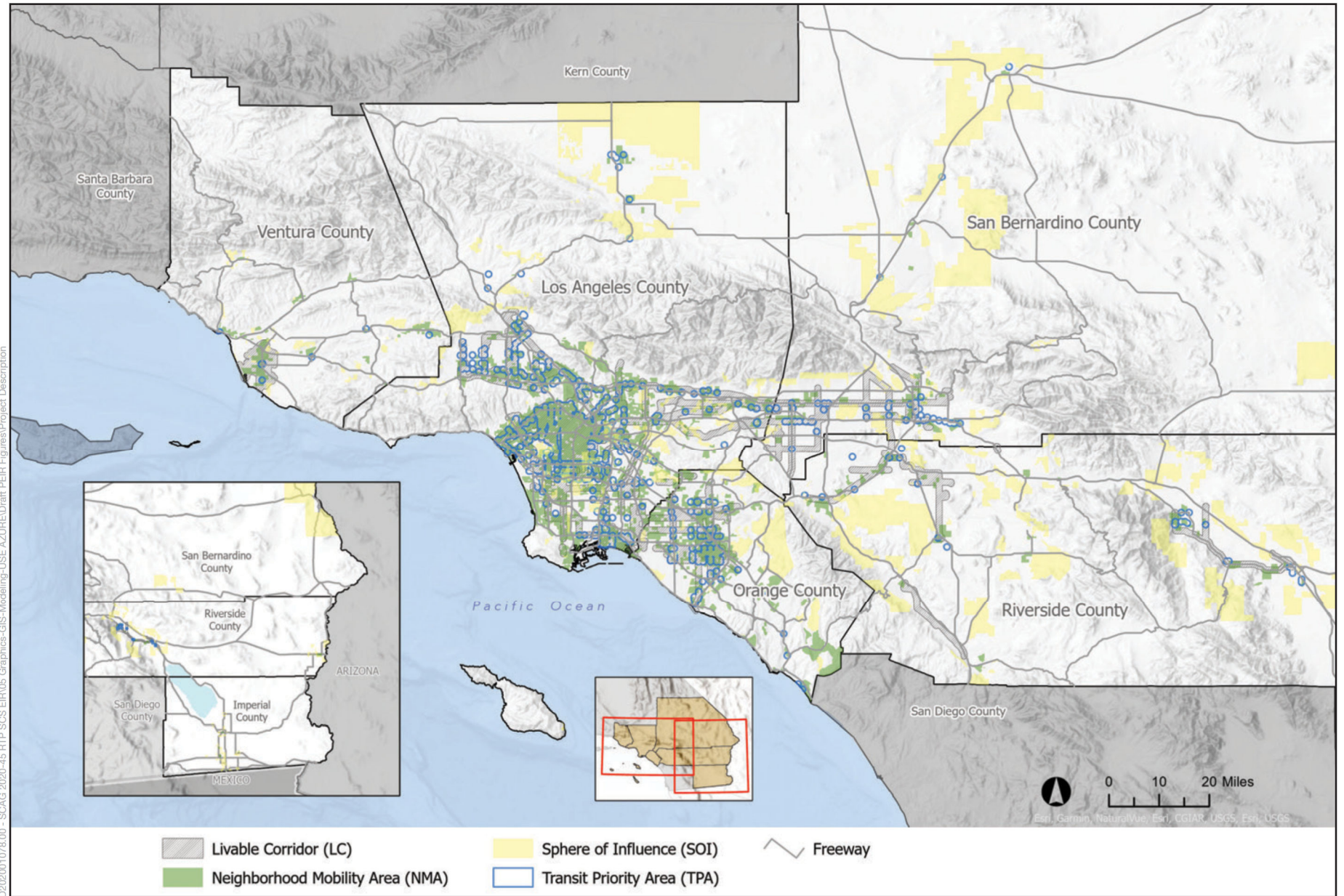


SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map 2-8
Forecasted Regional Development Pattern





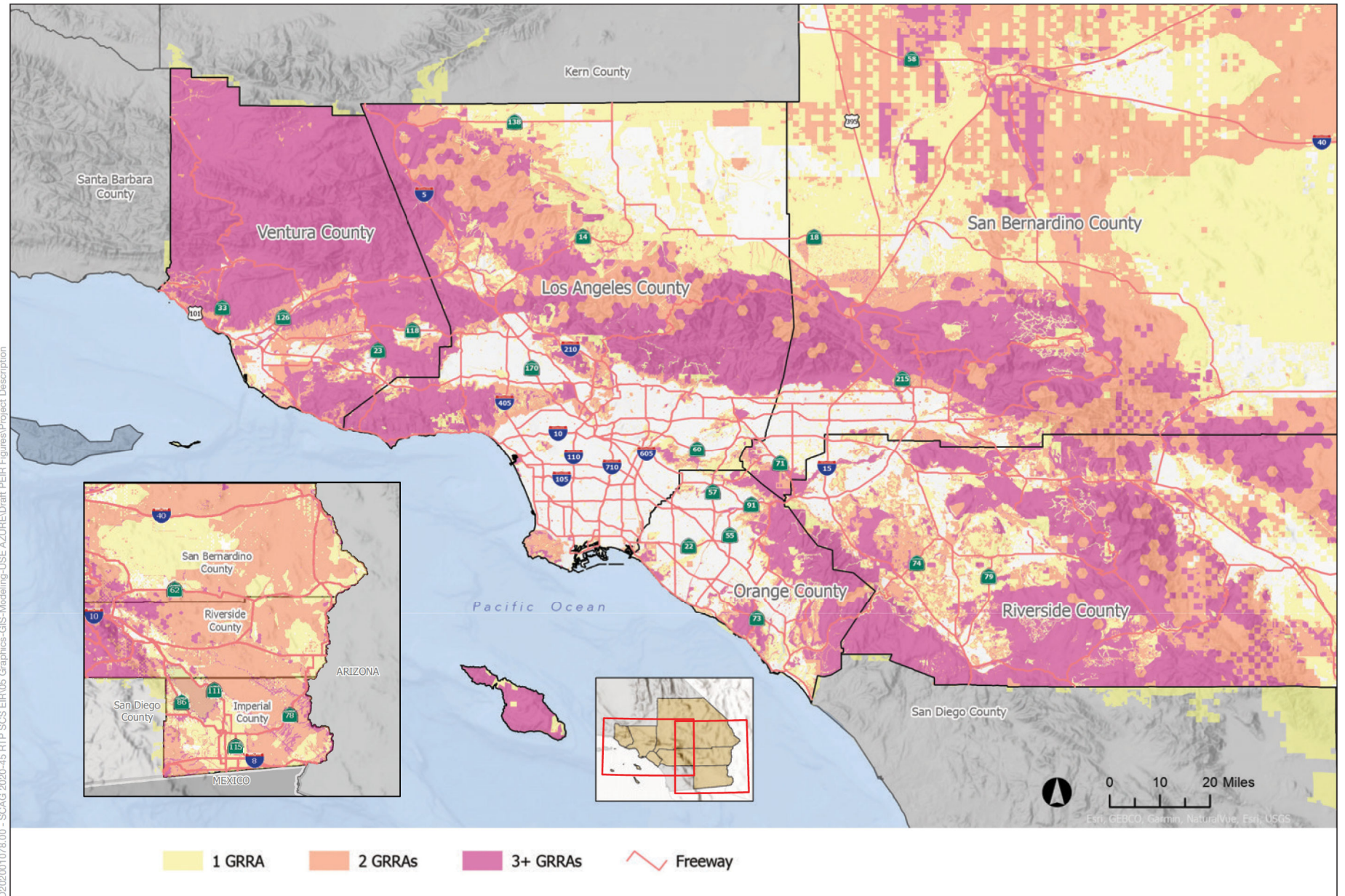
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SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map 2-9
Priority Development Areas





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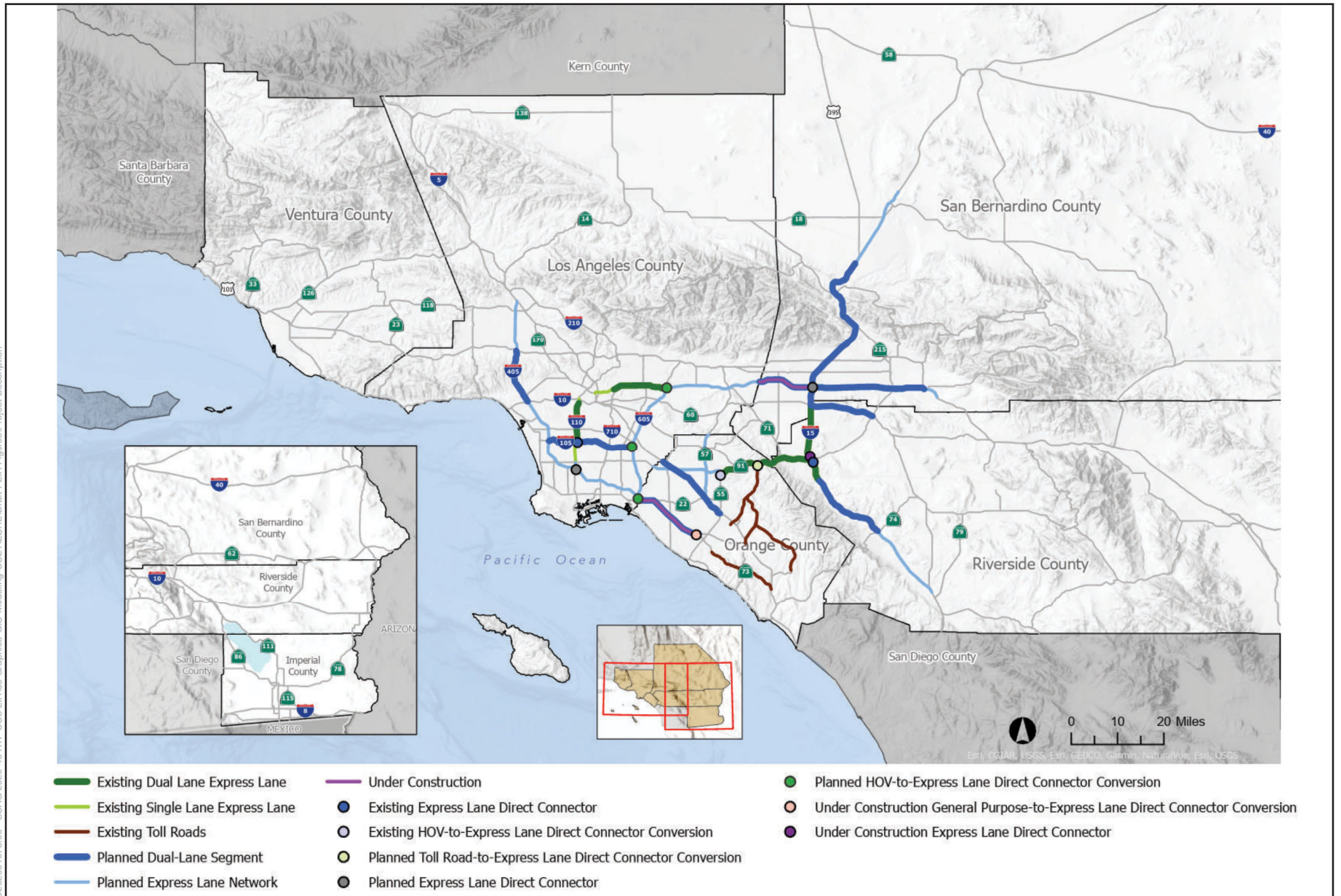
SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map 2-10
Green Region Resource Areas



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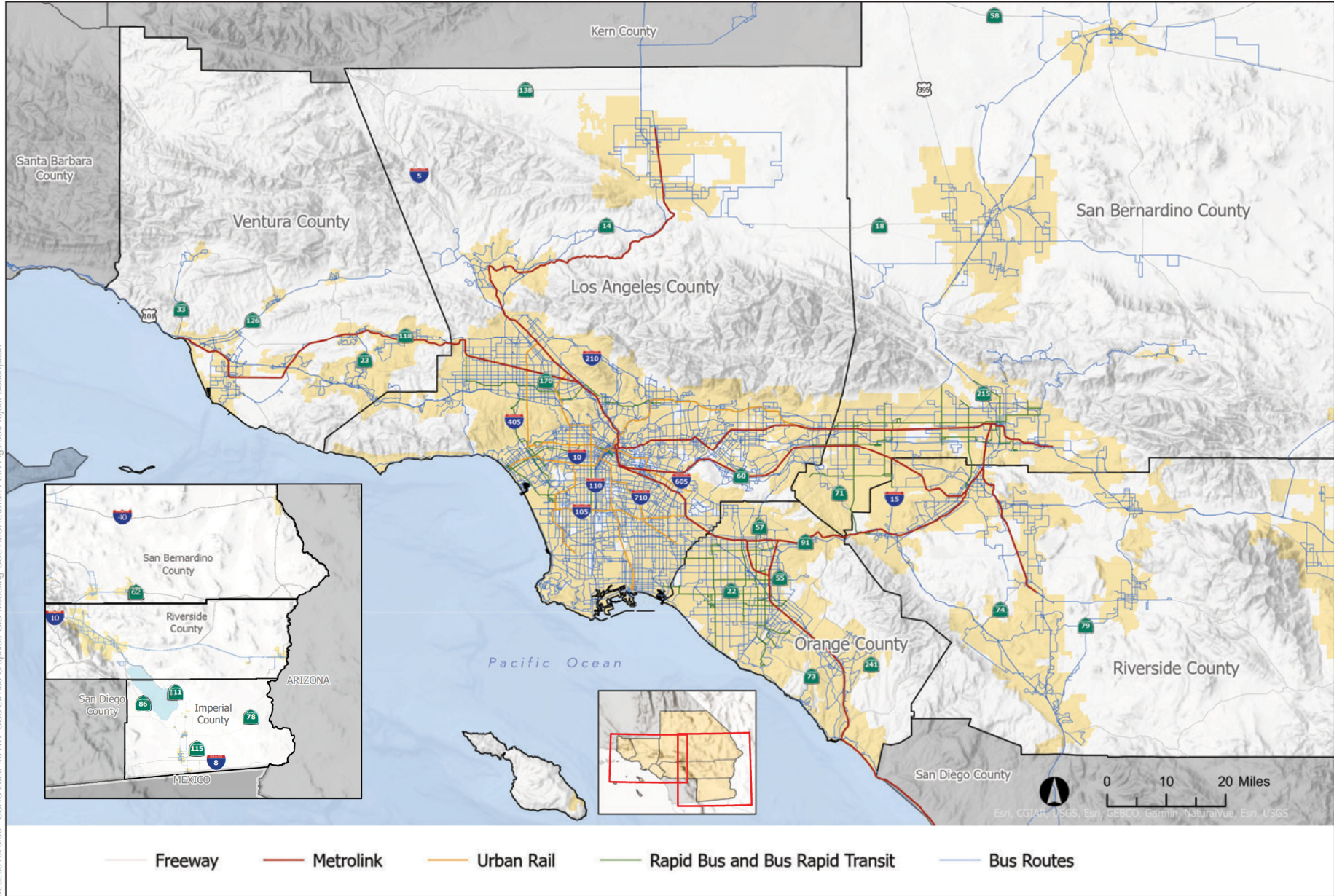


SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map 2-11
Planned Regional Express Lane Network





SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map 2-12
2050 Plan Transit Network



2.11 SOURCES

- American FactFinder. 2017. 2017 Population Estimates. <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. Accessed July 29, 2019.
- California Air Resources Board (CARB). 2019. Sustainable Communities & Climate Protection Program. <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-climate-protection-program/about>. Accessed August 21, 2019.
- CARB. April 2005. Air Quality and Land Use Handbook: A Community Health Perspective. <http://www.arb.ca.gov/ch/handbook.pdf>.
- California Department of Fish and Wildlife (CDFW). 2023. Natural Communities. <https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities>. Accessed August 11, 2023.
- California Department of Transportation. 2023. 2024 RTP Guidelines Update. <https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/regional-and-community-planning/rtp-guidelines-update>. Accessed August 11, 2023.
- California Government Code. Title 7, Division 1, Chapter 2.5: Transportation Planning and Programming [65080-65086.5].
- Code of Federal Regulations. Title 40, Chapter 5, Subchapter A, Part 1502, Section 1502.13: Purpose and need.
- Code of Federal Regulations. Title 40, Chapter 5, Subchapter A, Part 1502, Section 1502.21: Incorporation by reference.
- Federal Highway Administration. 2012. Title 23, United States Code. <https://www.fhwa.dot.gov/map21/docs/title23usc.pdf>.
- Senate Bill No. 375: Transportation planning: travel demand models: sustainable communities strategy: environmental review.
- Southern California Association of Governments (SCAG). 2019. Biological Resources Report for the 2020-2045 Regional Transportation Plan and Sustainable Communities Strategy for The Southern California Association of Governments. Draft. July 2019. https://scag.ca.gov/sites/main/files/file-attachments/dpeir_connectsocial_appendix03_4_biologicalresources.pdf?1606004031.
- SCAG. 2023a. Connect SoCal 2024 Demographics and Growth Forecast. Draft Technical Report. November 2, 2023.
- SCAG. 2023b. Connect SoCal 2024 Transportation Finance. Draft Technical Report. November 2, 2023.
- SCAG. 2023c. Connect SoCal 2024 Transportation Conformity Analysis. Draft Technical Report. November 2, 2023.
- SCAG. 2023d. Connect SoCal 2024 Performance Monitoring. Draft Technical Report. November 2, 2023.
- U.S. Census Bureau. 2020. QuickFacts: California. <https://www.census.gov/quickfacts/fact/table/CA/POP010220#POP010220>. Accessed August 11, 2023.
- U.S. Code. Title 42, Section 7506: Limitations on certain Federal assistance.

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CHAPTER 3

Environmental Setting, Impacts, and Mitigation Measures

- 3.0 Introduction to the Analysis
- 3.1 Aesthetics
- 3.2 Agriculture and Forestry Resources
- 3.3 Air Quality
- 3.4 Biological Resources
- 3.5 Cultural Resources
- 3.6 Energy
- 3.7 Geology and Soils
- 3.8 Greenhouse Gas Emissions
- 3.9 Hazards and Hazardous Materials
- 3.10 Hydrology and Water Quality
- 3.11 Land Use and Planning
- 3.12 Mineral Resources
- 3.13 Noise
- 3.14 Population and Housing
- 3.15 Public Services
- 3.16 Recreation
- 3.17 Transportation

- 3.18 Tribal Cultural Resources
- 3.19 Utilities and Service Systems
- 3.20 Wildfire

3.0 INTRODUCTION TO THE ANALYSIS

3.0.1 ENVIRONMENTAL IMPACT ANALYSIS

OVERVIEW

This chapter of the Connect SoCal 2024 Program Environmental Impact Report (2024 PEIR) evaluates the potential of the Project (Connect SoCal 2024) to result in significant impacts to the environment. This chapter also provides a full scope of environmental analysis in conformance with the California Environmental Quality Act Guidelines (CEQA Guidelines).

As a result of the detailed evaluation contained in this 2024 PEIR, it has been determined that the Plan would result in significant or potentially significant impacts to Aesthetics; Agriculture and Forestry Resources; Air Quality (except for consistency with federal transportation conformity requirements); Biological Resources; Cultural Resources; Energy, Geology and Soils; Greenhouse Gas Emissions (except for consistency with SB 375); Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Mineral Resources; Noise; Population and Housing; Public Services; Recreation; Transportation; Tribal Cultural Resources; Utilities and Service Systems; and Wildfire. As discussed in more detail below, while Plan features and compliance with applicable laws and regulations may reduce impacts, uncertainty with respect to regulatory effectiveness and enforcement, individual circumstances, and project characteristics allows for the possibility that impacts could still be significant. Moreover, although mitigation measures have been proposed for all of the environmental resource areas identified above that would reduce the potentially significant impacts to the maximum extent practicable, and because individual circumstances and specific project characteristics are not reasonably foreseeable and SCAG has no authority over the implementation of project-level mitigation measures, impacts are considered to remain significant and unavoidable, even with the implementation of mitigation measures.

Each section provides the environmental setting consisting of definitions and existing conditions, regulatory framework, environmental impacts consisting of thresholds of significance, methodology, impact analysis, mitigation measures for significant impacts, level of significance after mitigation, cumulative impacts, and sources. The existing conditions portion of the environmental setting has been prepared in accordance with the CEQA Guidelines and includes a description of the physical environment in the Plan area (see additional discussion of baseline conditions as evaluated in this 2024 PEIR below). The existing conditions are described based on literature review, archived resources, and agency coordination. The federal, state, regional, county, and local laws, regulations, ordinances, rules, plans, and policies applicable to each resource area are included in the regulatory framework. Significance thresholds were established in accordance with Appendix G of the CEQA Guidelines. While the significance thresholds utilized throughout this 2024 PEIR largely follow those included in Appendix G of the CEQA Guidelines in terms of content and organization by topic, in some instances where similar or related issues are addressed by multiple thresholds either in the same section or in different sections (e.g., greenhouse gas emissions, hazards and hazardous materials, public services, and wildfire), impacts associated with those thresholds may be combined or addressed together in one section in order to reduce redundancy and provide a more succinct discussion. The level of significance after mitigation is evaluated in accordance with the thresholds of significance and the effectiveness of the proposed mitigation measures to reduce potentially significant impacts to below the significance threshold. The impact analysis contained in this PEIR is based on the implementation of Connect SoCal 2024, as described in Chapter 2, *Project Description*. The proposed mitigation measures are designed to address impacts at a programmatic level and contain SCAG mitigation measures and project-level mitigation measures.

The SCAG region includes six counties, 38,000 square miles, 191 cities, 5.5 million acres of critical habitat, six major climate types, 150 miles of coastline, 298 federally and/or state listed species, six major climate types and elevations ranging from 230 feet below sea level in the Imperial Valley to the 11,503-foot summit of Mt. San Geronio. The proposed Project is a long-range regional transportation and land use plan that conceptually identifies approximately 2,000 transportation projects as well as policies and strategies to achieve the Plan's Goals and Objectives, as described in Chapter 2, *Project Description*. The Plan includes a forecasted regional development pattern that provides one potential growth pattern that implements the Plan by increasing growth in Priority Development Areas (PDAs) and minimizing growth in Green Region Resource Areas (GRRAs). However, SCAG wields no local land use authority; all land use decisions remain the purview of cities and counties. Population growth remains a factor generally outside of local control, cities and counties do control the provision of housing and employment opportunities for that population, and this ultimately determines densities and growth patterns.

Given the size of the region, the lack of detail with respect to individual projects, and the minimum 20-year period, the PEIR provides a programmatic regional-level analysis of potential construction and operational impacts of new transportation projects planned by the region's County Transportation Commissions and transit providers and potential development from the integrated land use development patterns anticipated and encouraged to occur during the lifetime of the Plan.

CEQA BASELINE CONDITIONS FOR ANALYSIS OF IMPACTS

As noted above, the minimum 20-year planning horizon of Connect SoCal 2024 spans 26 years, from 2024 to 2050. The CEQA Guidelines provide that the existing physical conditions at the time the Notice of Preparation (NOP) is published will "normally" constitute the baseline (CEQA Guidelines Section 15125(a)). However, CEQA Guidelines Section 15125(a)(1) indicates that, "where existing conditions change or fluctuate over time, and where necessary to provide the most accurate picture practically possible of the project's impacts, a lead agency may define existing conditions by referencing historic conditions ... that are supported by substantial evidence."

By 2050, implementation of the Plan will result in a land use pattern and transportation network that is different from existing conditions. Unless otherwise stated, "existing conditions" in the Plan refers to conditions in the baseline year of 2019. The Plan uses 2019 as a baseline year for analysis, rather than the NOP issuance date (October 2022), because it is consistent with SCAG's modeling baseline for the Plan and the most recent year for which comprehensive land use, demographic, traffic count, and vehicle miles traveled (VMT) data are available for the Plan area, as described further below.

The primary basis for reliance upon 2019 data for baseline conditions is related to the drastic changes in travel patterns, transportation activity, employment conditions, and overall movement of goods and people in the region as a result of the COVID-19 global pandemic. With the onset of stay-at-home orders, social distancing mandates, travel restrictions, and other pandemic-related effects in early 2020, historic trends related to commute patterns, vehicular activity, air traffic, public transit, goods movement, and other relevant metrics were drastically skewed by the sudden comprehensive changes in daily life resulting from the government's response to the virus. Although many pandemic-affected activities have since stabilized and, in some cases, returned to pre-pandemic levels, many key factors such as widespread work-from-home policies, food and retail product delivery services, and leisure travel demands have not returned to prior conditions and may never do so.

In order to provide a consistent basis for comparison, this 2024 PEIR uses 2019 as the baseline year for the analysis of Plan-related impacts that are modeling-dependent (see further discussion of SCAG's models below). 2019 provides the most complete, integrated data portrait of the existing conditions in the region because it is the most

recent year for which comprehensive land use, demographic, traffic count, and VMT data are available for the SCAG region without the influence of pandemic-related effects. Thus, 2019 will give “the most accurate picture practically possible” of impacts under Connect SoCal 2024 as required under CEQA Guidelines Section 15125.

It should be noted that for some topic areas (such as agriculture and forestry resources, hydrology and water quality, and utilities and service systems) resources, facilities, or conditions were not notably affected by pandemic-related societal changes or relevant trends have emerged or continued since 2019 conditions. Where appropriate and identified throughout this 2024 PEIR, the environmental and regulatory settings of various resource areas have used more recent data to better characterize baseline conditions. Or, conversely, where data were unavailable for 2019 or a more recent year, the most recent data were used (typically 2022). See the *Methodology* section for each resource area for an additional discussion of data used to characterize environmental and regulatory settings for each resource topic.

INTERIM YEARS

The year 2050 is the horizon year of Connect SoCal 2024. While the Plan would be implemented gradually over the 26-year planning period, this 2024 PEIR does not generally analyze interim timeframes because the four-year update cycle of the RTP/SCS already requires short-term adjustments to Connect SoCal 2024.

An exception to this approach is in Section 3.3, *Air Quality*, which evaluates criteria air pollutant emissions for interim analysis years. Additionally, Section 3.8, *Greenhouse Gas Emissions*, examines impacts for the years 2020 and 2035 in comparison to a baseline of 2005 (to address consistency with SB 375 targets), and for the years 2030 and 2045 in comparison to a baseline of 2019 (to address consistency with all other applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases [GHGs]). Refer to Section 3.8 for additional information regarding laws, regulations, plans, and GHG reduction targets. In addition, Section 3.14, *Population and Housing*, provides a discussion of anticipated population growth in the region, which is the basis for the evaluation of air quality and GHG emissions impacts (including for the target years noted above), as these projections are utilized in stationary source emissions modeling and in transportation modeling for on-road mobile-source emissions. Section 3.17, *Transportation*, provides the region’s projected VMT for each of the target years, with VMT being a key factor in meeting the region’s GHG reduction targets.

REGIONAL GROWTH FORECAST

As described in Chapter 2, *Project Description*, and Section 3.14, *Population and Housing*, the process for developing the Plan began with an assessment of regional demographic and economic trends using a variety of spatially-explicit data sources—including local land use plans—to assess where growth is most likely to occur within the region. SCAG developed its Regional Growth Forecast using a range of demographic and economic data sources including the newly available 2020 Decennial Census, emphasizing a balance between future employment, population, and households. regional growth forecast process incorporates extensive input and data including the most up-to-date local land use information, policy responses, demographic, and economic data in order to determine the most likely future pattern of regional growth.¹ The growth forecast of projected regional

¹ SCAG’s regional growth forecasting process emphasized the participation of local jurisdictions and other stakeholders. The Local Data Exchange (LDX) process was used to give local jurisdiction’s opportunity to provide input related to land use and the future growth of employment and households to ensure that the most updated information from local jurisdictions was gathered to link and align local planning with a regional plan that can meet federal and state requirements and reflect a regional vision. Therefore, LDX was a key component of allocation of growth across jurisdictions in the SCAG region with 67% of jurisdictions providing information as part of the LDX process.

population, employment numbers, and households was then used to calculate the new building square footage required for different segments of the economy (e.g., retail, office, industrial, etc.) and the new housing units required to house the projected population of the region.² In other words, growth was forecasted prior to preparation of the Plan and was used as a basis for subsequent plan development and analysis.

IMPACT ANALYSIS METHODS

The 2024 PEIR includes the following types of analyses:

1. **Qualitative.** The PEIR qualitatively analyzes environmental resource areas based on the Plan characteristics including Goals and Objectives, Regional Planning Policies, Implementation Strategies, and Performance Measures described in Chapter 2, *Project Description*.
2. **Quantitative/modeled data.** The PEIR quantitatively analyzes the results of air quality, land use, and transportation modeling. The following models are used to identify potential environmental impacts:
 - a. **The Regional Activity-Based Travel Demand Model (RTDM)** and emissions models. RTDM is a peer-reviewed, activity-based regional travel demand forecasting model developed and maintained by SCAG. SCAG has been developing and improving these travel demand forecasting models for the SCAG region since 1967. The model meets or exceeds the state of the practice and is based on recommendations from SCAG's Model Peer Review Committee. The model was validated for the 2019 base year and meets all the requirements of the Transportation Conformity Regulations of 40 CFR Section 93.122(b)(1)(i-vi). RTDM is used to quantify the performance metrics of the transportation system including VMT, criteria pollutant emissions, and GHG emissions for Connect SoCal 2024 and the PEIR.
 - b. **The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD)** is the state-of-the-science, steady-state Gaussian air dispersion model based on planetary boundary layer theory. AERMOD is the recommended air quality dispersion model and is used for calculating air pollutant concentrations from most source types. AERMOD simulates how pollutant emissions move and disperse in the air. The model is approved by the United States Environmental Protection Agency (USEPA), California Air Resources Board (CARB) and the air districts within the SCAG region as the industry standard for use in the air dispersion modeling for health risk assessment, nitrogen dioxide National Ambient Air Quality Standards (NAAQS) analysis and nitrogen deposition analysis. USEPA Guidelines on Air Quality Models – Appendix W lists AERMOD as the preferred model for mobile source applications.
 - c. **The California Emissions Estimator Model (CalEEMod)** is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The model was developed for the California Air Pollution Officers Association (CAPCOA) in collaboration with the California Air Districts. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California Air Districts to account for local requirements and conditions. CalEEMod utilizes widely accepted methodologies for estimating emissions combined with default data that can be used when site-specific information is not available. Sources of these methodologies and default data include the USEPA's AP-42 emission factors,

² It is expected that household growth over the Connect SoCal horizon will exceed the 6th cycle RHNA housing unit need. SCAG's preliminary growth forecast at the jurisdiction and neighborhood levels, released on May 23rd, 2022, sought to reflect capacity changes from the 6th cycle of RHNA as this is an adopted policy with a large potential impact on household growth by 2050. However, since many jurisdictions' housing elements are incomplete and the rezonings associated with them may not be due until October 2024, data on newly available sites is inherently incomplete.

CARB's vehicle emission models, and studies commissioned by California agencies such as the California Energy Commission (CEC) and California Department of Resources Recycling and Recovery (CalRecycle). The CalEEMod 2022.1 model is the latest version of the model and is recommended by the air districts within the SCAG region for use in estimating air quality and greenhouse gas emissions in preparing CEQA or National Environmental Policy Act (NEPA) documents, conducting pre-project planning, and verifying compliance with local air quality rules and regulations.

- d. **The Emission FACTors (EMFAC) model** is developed and used by CARB to assess emissions from on-road vehicles including cars, trucks, and buses in California, and to support CARB's regulatory and planning efforts. The EMFAC model is used to calculate current and future criteria pollutant and greenhouse emissions inventories for motor vehicles at the state, air district, air basin, county, and project level. The EMFAC model also provides emissions rates of criteria pollutant and greenhouse gas emissions for on-road mobile sources for a range of past and future calendar years. EMFAC2021 is the latest CARB-developed and USEPA approved model (approval in November 2022). EMFAC2021 reflects CARB's current understanding of statewide and regional vehicle activities, emissions, and adopted regulations.
- e. **The Hotspots Analysis and Reporting Program Version 2 (HARP2)** is a package of software developed by CARB and used to support the requirements of the Air Toxics "Hot Spots" Program and to perform health risk assessments. Specifically, the **Health Risk Assessment Standalone Tool (RAST)** is used to calculate potential cancer and noncancer health impacts from inputs of emissions from CalEEMod and EMFAC as well as unitized ground level concentration values obtained from AERMOD. The model can be used to implement the HRA guidance promulgated by OEHHA.
- f. **The Scenario Planning Model (SPM)** is a web-based data management, land use development and modeling platform, developed by customizing the open-source version of UrbanFootprint (UF v1.5). SPM enables the creation and organization of local and regional data, plans and policies, and estimates a wide range of potential benefits resulting from alternative transportation and land use strategies. Starting with the 2016 RTP/SCS, SPM has been instrumental in assessing the existing and alternative future conditions for the Southern California region. SPM is used in providing directional and order-of-magnitude regional impacts of local land use and policy decisions. SPM analysis is grounded in its "canvas" of data that constitutes a base year (2019) as well as plan horizon year assessments of land use, demographic characteristics, and other conditions. This detailed data facilitates comparing land consumption, land conservation, passenger vehicle travel, bike and pedestrian accessibility, energy and water use, household costs, public health impacts, risk and resilience, and local infrastructure costs. The SPM analysis "modules" include the following: Land Consumption module, Fiscal Impact module, Energy use module, Water use module, Transportation module, Accessibility module, Public Health engine, and Land Conservation engine. A full description of the SPM and associated modules is available in the Connect SoCal 2024 Land Use and Communities Technical Report in the Plan.

Many analyses use a combination of qualitative and quantitative methods to provide a reasonably conservative analysis of anticipated Plan's environmental impacts at the regional level.

3.0.2 PLAN FEATURES THAT MAY REDUCE IMPACTS

As described in Chapter 2, *Project Description*, the Plan includes Regional Planning Policies and Implementation Strategies. The Regional Planning Policies provide guidance for integrating land use and transportation planning to realize the vision of Connect SoCal 2024, which is a healthy, prosperous, accessible, and connected region for a more resilient and equitable future. The Implementation Strategies help the region to achieve this vision for the

future and are priorities for SCAG efforts in fulfilling or going beyond the Regional Planning Policies. The Regional Planning Policies and Implementation Strategies were developed to achieve California's greenhouse gas emission reduction goals as set forth in SB 375 and federal Clean Air Act Section 176(c) requirements for transportation conformity while meeting the broader regional objectives, such as improved equity and resilience in addition to preservation of natural lands, improvement of public health, increased roadway safety, support for the region's vital goods movement industries and more efficient use of resources. See Connect SoCal 2024, Chapter 3: The Plan, for more details on the Regional Planning Policies and Implementation Strategies.

As part of the environmental analysis, this 2024 PEIR considers and discusses the potential of the Plan's Regional Planning Policies and Implementation Strategies to reduce impacts to the environment prior to the application of feasible mitigation measures. While not specifically designed to avoid or reduce environmental impacts, Regional Planning Policies and Implementation Strategies may in effect address some potential environmental impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(2)). Rather than using the Regional Planning Policies and Implementation Strategies as mitigation measures, since these policies and strategies are already incorporated into and part of the Plan, the 2024 PEIR considers these policies and strategies as features of the Plan and discusses them in Chapter 2, *Project Description*, before the Plan is undergoing environmental analysis in this Chapter 3. Tables 2-2 and 2-3 in Chapter 2 of this 2024 PEIR assigns each Regional Planning Policies and each Implementation Strategies, respectively, with applicable environmental resource areas to show how these Plan features may reduce environmental impacts evaluated in Sections 3.1 through 3.20 of this 2024 PEIR.³

3.0.3 COMPLIANCE WITH LAWS AND REGULATIONS

Likewise, compliance with all applicable federal, state, and local laws, regulations, ordinances, rules, plans, and polices (as set forth in the Regulatory Framework for each resource area) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). The requirements are incorporated into the impact analysis by reference and are generally not included as mitigation measures.⁴ As discussed in more detail below, after consideration of Regional Planning Policies and Implementation Strategies and compliance with all laws and regulations, where there are remaining potentially significant impacts, feasible mitigation measures that go above-and-beyond existing laws, regulations, Regional Planning Policies and Implementation Strategies, are identified.

3.0.4 MITIGATION MEASURES

As noted above, the 2024 PEIR addresses a large-scale region with a variety of potential projects spread over more than 20 years. As such, this 2024 PEIR identifies regional-level mitigation measures to be implemented by SCAG over the lifetime of the Plan as well as project-level mitigation measures that lead agencies can and should consider, as applicable and feasible, in subsequent project-specific design, CEQA review, and decision-making processes. Given that SCAG is not an implementing agency and has no authority over projects in the Plan or any

³ Note that some Regional Planning Policies and Implementation Strategies may have in the past been identified as SCAG mitigation measures, but, consistent with CEQA Guidelines Sections 15064(f)(2) and 15126.4(a)(1)(A), such mitigation measures have been elevated and incorporated as Plan features in Connect SoCal 2024. As such, the number of SCAG mitigation measures identified in this 2024 PEIR has been reduced.

⁴ As with some of the Implementation Strategies, in the past, SCAG has incorporated many regulatory requirements in mitigation measures, which is allowable; however, in an effort to streamline the 2024 PEIR, SCAG will generally discuss the reduction in impacts as a result of regulatory compliance in the impact analyses. This will result in fewer project-level mitigation measures in the 2024 PEIR.

land use authority, it is ultimately up to the lead agency's own discretion to determine the appropriateness of the mitigation measures based on project-specific circumstances.

Consistent with CEQA Guidelines and case law, the mitigation measures to be implemented by SCAG in this 2024 PEIR correspond to SCAG's roles and are less detailed than those that would be part of a project EIR, and the more detailed project-level, performance standards-based mitigation measures are properly deferred to future project-specific CEQA reviews by lead agencies with decision-making authority over individual projects (see CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B)).

SCAG has no authority to impose project-level mitigation measures; rather, lead agencies have the discretion to determine which mitigation measures are applicable and feasible based on the individual site conditions, project-specific details, and community values. SCAG, however, has identified project-level mitigation measures that lead agencies can and should consider (among others) for implementation as applicable and feasible.

The mitigation measures presented in this 2024 PEIR recognize the limits of SCAG's authority; distinguish between SCAG commitments and project-level responsibilities and authorities; optimize flexibility for project implementation; and facilitate CEQA streamlining (e.g., SB 375) and tiering where appropriate on a project-by-project basis determined by each lead agency.

3.0.5 CUMULATIVE IMPACTS

CEQA Guidelines Section 15130 requires that an EIR evaluate potential environmental impacts that are individually limited but cumulatively significant. CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Section 15355). The purpose of a cumulative analysis is to determine if several projects when evaluated together could result in a significant "cumulative" impact that would otherwise not be considered significant when projects are evaluated one at a time. If several projects considered together have the potential to result in a significant cumulative impact (that is not already identified as a significant project impact), the question becomes whether the project being analyzed would result in a "considerable" contribution to such a significant cumulative impact. Therefore, if a project results in a significant impact by itself, then its contribution to a cumulative impact is considerable.

Connect SoCal 2024 is a regional-scale Plan comprised of regional policies and strategies, a regional growth forecast, and individual transportation projects. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. In most resource areas, the Plan, in and of itself, would result in adverse environmental impacts and would only add to impacts of other cumulative or related projects.

As discussed in the following sections of the 2024 PEIR, the Plan would result in significant impacts in all issue areas (except for two issue areas: Plan's consistency with federal transportation conformity requirements under Air Quality and Plan's consistency with SB 375 under Greenhouse Gas Emissions). While the land use policies and strategies included in the Plan would result in a more compact development pattern which in turn would reduce impacts, the Plan could also facilitate access to other areas of the state by increasing infrastructure which could ultimately influence growth in areas outside the region's boundaries. Mitigation measures would reduce impacts, but impacts would remain significant and could contribute to cumulative impacts outside the SCAG region.

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3.1 AESTHETICS

This section of the 2024 PEIR describes the existing visual characteristics within the SCAG region, sets forth the regulatory framework that addresses aesthetic resources, and analyzes the significance of the potential impacts to visual character that could result from Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures, as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental reviews to reduce identified impacts as appropriate and feasible.

3.1.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for aesthetics follow:

- *Aesthetic Value*: A measure of an area's visual character and scenic quality, combined with the viewer response to the area. The scenic quality component can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area. Viewer response is a combination of viewer exposure and viewer sensitivity. Viewer exposure is a function of the number of viewers, the number of views seen, the distance of the viewers, and the viewing duration. Viewer sensitivity relates to the extent of the public's concern for particular viewsheds.
- *Degree of visibility*: The extent to which transportation improvements and/or anticipated development can be seen. This refers to a large extent to route alignment and configuration (i.e., elevated, at grade, depressed, or underground) of the transportation improvement and location, height/bulk, construction materials (reflectivity, color) of development. Generally, elevated grade transportation investments have a more substantial impact on aesthetics and views. The taller a development, in general, the greater the potential for impact.
- *Glare*: Perceived glare is the unwanted and potentially objectionable sensation as observed by a person looking directly into the light source (e.g., the sun, the sun's reflection, automobile headlights, or other light fixtures). Reflective surfaces on existing buildings, car windshields, etc., can expose people and property to varying levels of glare. Glare is typically a daytime condition where the sun reflects off a particular building, while lighting effects often occur when new nighttime sources of lighting are introduced into an area.
- *Scale*: The size and proportion, and of transportation improvements and development in relation to the massing of the structures and buildings in surrounding area.
- *Scenic Resources*: Significant visual resources identified by local planning documents that can be maintained and enhanced to promote a positive image in the community, such as natural open spaces, topographic formations, and landscapes that contribute to a high level of visual quality. Natural landforms and landscapes are often established as scenic resources, such as lakes, rivers and streams, mountain meadows, and oak woodlands. However, scenic resources can also include man-made open spaces and the built environment, such as parks, trails, nature preserves, sculpture gardens, and similar features.
- *State-Designated Scenic Highway*: The State Scenic Highway Program was created in 1963 to protect and enhance the natural scenic beauty of California highways and adjacent corridors through special conservation treatment, a highway may be designated scenic depending upon how much of the natural landscape can be

seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler’s enjoyment of the view (Los Angeles County Department of Regional Planning 1965).

- *Viewshed:* A viewshed is a geographic area composed of land, water, biotic and/or cultural elements seen from one or more viewpoints and has inherent scenic qualities and/or aesthetic value as determined by those who view it. A viewshed’s extent can be limited by a number of intervening elements, including trees and other vegetation, built structures, or topography such as hills and mountains.
- *Visual Quality:* Visual quality refers to the character of the landscape, which generally gives visual value to a setting (FHA 2015).¹ Various local jurisdictions, such as cities, counties, and federal or regional agencies, provide guidelines regarding the preservation and enhancement of visual quality in their plans or regulations.² An example of such guidance is the California Department of Transportation (Caltrans) Scenic Highway Visual Quality Program Intrusion Examples, which are presented in **Table 3.1-1, Caltrans Scenic Highways Program: Examples of Visual Quality Intrusions**. As that table illustrates, a given visual element may be considered desirable or undesirable, depending on design, location, use, and other considerations. Because of the size and diversity of the SCAG region, it is not possible or appropriate to apply uniform standards to all areas within the region.

TABLE 3.1-1 Caltrans Scenic Highways Program: Examples of Visual Quality Intrusions

LAND USE TYPE	MINOR INTRUSION	MODERATE INTRUSION	MAJOR INTRUSION
Buildings: Residential, Commercial, Industrial Development	Widely dispersed buildings. Natural landscape dominates. Wide setbacks and buildings screened from roadway. Exterior colors and materials are compatible with environment. Buildings have cultural or historical significance.	Increased number of buildings but are complementary to the landscape. Smaller setbacks and lack of roadway screening. Buildings do not degrade or obstruct scenic view.	Dense and continuous development. Highly reflective surfaces. Buildings poorly maintained. Visible blight. Development along ridgelines. Buildings degrade or obstruct scenic view.
Unsightly Land Uses: Dumps, Quarries, Concrete Plants, Tank Farms, Auto Dismantling	Screened from view so that facility is not visible from the highway.	Not screened from view and visible but programmed/funded for removal and site restoration.	Not screened from view and visible by motorists. Will not be removed or modified. Scenic view is degraded.
Strip Malls		Neat and well landscaped. Blend with surroundings	Not harmonious with surroundings. Poorly maintained or vacant. Blighted, Development degrades or obstructs scenic view.
Parking Lots	Screened from view so that vehicles and pavement are not visible from the highway	Neat and well landscaped. Blend with surroundings	Not screened or landscaped. Scenic view is degraded.
Off-Site Advertising Structures			Billboards degrade or obstruct scenic view

¹ The term “visual quality” is used synonymously with “scenic quality” in this document.

² California cities and counties are not required to include visual quality elements in their General Plans, although many do. However, the General Plans are required to include a Conservation Element, which includes resources such as waterways and forests that frequently are also scenic resources.

LAND USE TYPE	MINOR INTRUSION	MODERATE INTRUSION	MAJOR INTRUSION
Noise Barriers		Noise barriers are well landscaped and complement the natural landscape. Noise barriers do not degrade or obstruct views.	Noise barriers obstruct scenic view.
Power Lines	Not easily visible from road.	Visible, but compatible with surroundings	Poles and lines dominate view. Scenic view is degraded.
Agriculture: Structures, Equipment, Crops	Blends in and complements scenic view. Indicative of regional culture.	Not in harmony with surroundings. Competes with natural landscape for visual dominance.	Incompatible with and dominates natural landscape. Structures equipment or crops degrade scenic view.
Exotic Vegetation	Used as screening and landscaping. Blends in and complements scenic view.	Competes with native vegetation for visual dominance.	Incompatible with and dominates natural landscape. Structures equipment or crops degrade scenic view.
Clearcutting		Tress bordering highway remains so that clearcutting is not evident.	Clearcutting or deforestation is evident. Scenic view is degraded.
Erosion	Minor soil erosion.	Slopes beginning to erode. Not stabilized.	Large slope failures and no vegetation. Scenic view is degraded.
Grading	Grading blends with adjacent landforms and topography.	Some changes, but restoration is taking place.	Extensive cut and fill. Scarred hillsides and landscape. Canyons filled in. Scenic view is degraded.
Road Design	Blends in and complements scenic view. Roadway structures are suitable for location and compatible with surroundings.	Cut and fill is visible but has vegetative cover.	

Source: Caltrans 1996

Scenic resources can include natural open spaces, topographic formations, landscapes, and manmade features. Many people associate natural landforms and landscapes with scenic resources, such as woodlands, lakes, rivers, streams, mountains, habitat, and agricultural lands. Scenic resources can also include urban open spaces and the built environment. Examples of these would include urban parks, trails, and nature centers, archaeological and historical resources, and man-made structures like buildings and bridges with unique architectural features. Tall buildings may also provide excellent views of scenic resources beyond the urban core. Typically, local jurisdictions identify designated scenic resources, or some similar classification system, to identify priority scenic resources. These designated scenic resources are the focus of this section.

In urban areas, roadway rights-of-way comprise 20 to 30 percent of the total land area. As a result, transportation systems have a major influence on human perception of the visual environment. As most vehicular movement occurs along transportation corridors, their placement largely determines what parts of the area will be seen. Even for people not using the transportation system at a particular time, or who never use certain modes of travel, transportation systems are usually a dominant element of the visual environment. Air quality and visibility affect view sheds and visual quality. In the SCAG region, under certain weather conditions, pollutant emissions combined with poor natural ventilation in the air basin result in degraded visibility. Of particular note is photochemical smog

and airborne particulates, finely divided solids or liquids, such as soot, dust, aerosols, and mists that absorb sunlight, producing haze and reducing visibility.

It is useful to think of scenic resources in terms of “typical views” seen throughout the SCAG region because scenic resources are rarely encountered in isolation. A typical view may include several types of scenic resources, including both natural and man-made elements. The typical views seen within the SCAG region are outlined in the following paragraphs. It is important to distinguish between public and private views. Private views are views seen from privately owned land and are typically viewed by individual viewers, including views from private residences.

Public views are those experienced by the collective public. These include views of significant landscape features such as San Geronio Mountain or the Salton Sea, as seen from public viewing spaces, not privately owned properties. The analysis below addresses public views and not private views, since obstruction of private views is not generally regarded as a significant environmental impact (see *Citizens for Responsible and Open Government v. City of Grand Terrace* [2008] 160 Cal.App.4th 1323, 1337–38; *Mira Mar Mobile Community v. City of Oceanside* [2004] 119 Cal.App.4th 477, 492–93). California Environmental Quality Act (CEQA) (Pub. Resources Code Section 21000 et seq.) case law has established that in general protection of public views is emphasized. For example, in *Association for Protection etc. Values v. City of Ukiah* (1991) 2 Cal.App.4th 720 [3 Cal.Rptr.2d 488] the court determined that:

“We must differentiate between adverse impacts upon particular persons and adverse impacts upon the environment of persons in general. As recognized by the court in Topanga Beach Renters Assn. v. Department of General Services (1976) 58 Cal.App.3d 188 [129 Cal.Rptr. 739]: ‘[A]ll government activity has some direct or indirect adverse effect on some persons. The issue is not whether [the project] will adversely affect particular persons but whether [the project] will adversely affect the environment of persons in general.’”

Therefore, this analysis considers only public views in analyzing the visual impacts of implementing the Plan.

EXISTING CONDITIONS

This section characterizes the baseline conditions for scenic vistas, scenic resources within scenic highway corridors, visual character and quality, sources of light and glare and other scenic resources afforded protection pursuant to county and city general plans. The SCAG region ranges in character from urban centers, to rural agricultural lands, to natural woodlands, to mountains and canyons, to lakes and waterways, to beaches and the Pacific Ocean.

The visual quality and character of the SCAG region is a function of the dramatic physical environment, ringed by two mountain ranges, the peninsular and transverse ranges; two deserts, the Mojave and Colorado; sandy beaches and marine terraces along the approximately 150-mile western margin of the SCAG region where the land meets the Pacific Ocean; and the Channel Islands that parallel the coastline. The highway and transportation system in the SCAG region provides a wide variety of opportunities for enjoying the Southern California scenery and travelling to some of the state’s most popular destinations.

GEOMORPHIC REGIONS

The six-county SCAG region is comprised of six of California’s geomorphic regions: the Basin and Range province, the Coast Ranges, Colorado Desert province, the Mojave Desert, the Peninsular Ranges, and the Transverse Ranges.

The geomorphic provinces and the valuable aesthetic resources they contain are described below (American Geosciences Institute 2023).

BASIN AND RANGE PROVINCE

The SCAG portion of the Basin and Range province lies within San Bernardino County. The province represents the westernmost part of the Great Basin and is characterized by interior drainage with lakes and playas, and abrupt changes in elevation.

COAST RANGES

Within the SCAG region, Coast Ranges are located in the counties of Ventura and Los Angeles. The Ranges are north-west trending mountain ranges, rising between 2,000 and 6,000 feet above sea level, and the valleys associated with them. The SCAG portion of the Coast Ranges is subparallel to the Rift Valley of the San Andreas Fault and is composed of granitic rock.

COLORADO DESERT PROVINCE

San Bernardino, Imperial, and Riverside counties are home to the Colorado Desert province within the SCAG region. The basin lies approximately 245 feet below sea level and contains the Salton Sea, California's largest lake. The landscape is dry and barren and is characterized by the ancient beach lines and silt deposits of extinct Lake Cahuilla.

THE MOJAVE DESERT

The Mojave province within the SCAG region is located in Imperial, Los Angeles, Riverside, and San Bernardino counties. As the name suggests, it is composed of broad desert plains but also isolated mountain ranges. The interior region lies between the Garlock Fault and the San Andreas Fault and has enclosed drainage and various playas.

PENINSULAR RANGES

The Peninsular Ranges make up a large portion of the SCAG region and are prevalent in Imperial, Los Angeles, Orange, Riverside, and San Bernardino counties. The series of ranges is similar to the Coast Ranges but is characterized by granitic rock intruding metamorphic rock. The province is bound to the east by the Colorado Desert and includes the Los Angeles Basin, Santa Catalina, Santa Barbara, and San Clemente and San Nicolas islands.

TRANSVERSE RANGES

The Transverse Ranges are located in Los Angeles, Riverside, San Bernardino, and Ventura counties of the SCAG region. The series of mountain ranges and valleys trend east-west and are bordered by the Santa Cruz Islands to the west and the San Bernardino Mountains to the east. The ranges are characterized by oil-rich sedimentary rock and include the San Gabriel, Tehachapi, Santa Monica, and Santa Susana Mountains. The province also contains the Los Padres, Angeles, and San Bernardino national forests.

VISUAL CHARACTER AND QUALITY

Natural features include land and water resources such as parks and open areas, wilderness areas, beaches, and natural water resources. Man-made lakes are included as elements of the visual environment that have been constructed to resemble natural features. The loss of natural aesthetic features, reduction of vistas, or the introduction of contrasting urban features may diminish the value of natural resources in the region. Views of the coast from locations in Ventura, Los Angeles, and Orange counties are considered valuable visual resources (Los Angeles County Department of Regional Planning 2022; Orange County Public Works OC Development Services 2012; Ventura County 2020). Views of various mountain ranges are also widely prevalent throughout the region. Rivers, streams, creeks, lakes, and reservoirs located in the region may also be visually significant. Features of the built environment that may also have visual significance include individual or groups of structures that are distinctive due to their aesthetic, historical, social, or cultural significance or characteristics. Examples of the built environment that may be visually significant include bridges or overpasses, architecturally appealing buildings or groups of buildings, landscaped freeways, and a location where a historic event occurred.

The Plan identifies 35 Place Types, which represent the complete range of potential development types and patterns that make up the SCAG region and can be grouped into three Land Development Categories (LDC): Urban, Compact, and Standard. Urban represents the most intensely developed of the LDCs, usually located within and directly adjacent to moderate- and high-density urban centers. Virtually all of the development within the Urban LDC would be considered infill or redevelopment, is assumed supported by high levels of regional and local transit services, and tends to include multifamily and attached single family (townhome), with some small-lot single-family homes. Compact represents a less intense LDC than Urban but is still considered highly walkable and accessible to mixed land uses. The Compact LDC is also assumed to be well served regional and local transit service, but it may not benefit from as much service as Urban growth and is less likely to occur around major multimodal hubs. Standard represents the majority of auto-oriented development, with lower densities and land use patterns generally not suited for walking, biking, or transit service. While Standard LDC can contain a variety of housing types, single-family homes tend to compromise the majority of this development form.

In the approximately 38,000 square mile SCAG region, there are approximately 108,000 households located within an Urban LDC, over 2.1 million households located within a Compact LDC, and over 3.9 million households located within a Standard LDC (SCAG 2023). The majority of households within each of the counties are located within a Standard LDC, including 53.2 percent of households within Los Angeles County and 89.7 percent of households in Riverside County. (**Table 3.1-2, Urban, Compact, and Standard Land Development Categories by County**, and Map 2-7, Existing Land Uses, in Chapter 2, *Project Description*).

Most existing urban development is found along the coastal plains of Los Angeles, Orange, and Ventura Counties, as well as in adjoining valleys that extend inland from the coastal areas. Urban development also has moved into the inland valleys such as the Antelope, San Bernardino, Yucca, Moreno, Hemet–San Jacinto, Coachella, and Imperial Valleys. Downtown Los Angeles is the largest urbanized center within the SCAG region. Other high-density urbanized areas include other centers within the City of Los Angeles (Century City, Hollywood, Warner Center), as well as the downtown areas of other cities including the cities of Long Beach, Burbank, Glendale, Pasadena, and Pomona in Los Angeles County; Riverside in Riverside County; San Bernardino in San Bernardino County; Santa Ana, Anaheim, and Irvine in Orange County; Oxnard and Ventura in Ventura County; and El Centro in Imperial County. The urban form is limited by national forests, mountains, and the coast. The majority of medium- and high-density housing in the region is found in the urban core of the region, in Downtown Los Angeles, East Los Angeles, and the “West Side” of Los Angeles.

TABLE 3.1-2 Urban, Compact, and Standard Land Development Categories by County, 2019

COUNTY	PERCENT OF HOUSEHOLDS IN URBAN LAND	PERCENT OF HOUSEHOLDS IN COMPACT LAND	PERCENT OF HOUSEHOLDS IN STANDARD LAND
Imperial	0.0	15.4	84.6
Los Angeles	3.2	43.6	53.2
Orange	0.1	35.5	64.5
Riverside	0.0	10.3	89.7
San Bernardino	0.0	13.8	86.2
Ventura	0.0	31.3	68.7
SCAG Region	1.7	34.3	64.0

Source: SCAG 2023

Table Notes:

The LDCs listed above are composed of the following land use categories:

- *Urban*: Urban mixed use, urban residential, urban commercial, city mixed use, city residential, and city commercial
- *Compact*: Town mixed use, town residential, town commercial, village mixed use, village residential, village commercial, neighborhood residential, neighborhood low
- *Standard*: Office focus, low-density employment park, office/industrial, industrial focus, high-intensity activity center, low-density employment park, mixed-intensity activity center, low-intensity retail-centered neighborhood, retail: strip mall/big box, industrial/office/res mixed high, industrial/office/res mixed low, suburban multifamily, suburban mixed residential, residential subdivision, large lot residential area, rural residential, rural ranchettes, rural employment, campus/university/institutional, and parks & open space

Several beach communities, such as the cities of Santa Monica, Manhattan Beach, Hermosa Beach, Redondo Beach, Huntington Beach, and Newport Beach, have high density areas close to the ocean. Surrounding suburbs are predominantly low-density housing tracts typically interspersed with low-scale commercial corridors. Low-density housing, with interspersed low-density commercial areas expands west into Ventura County, east through southeast Los Angeles County, throughout much of Orange County, and through the western Inland Empire. The resort communities and cities of the Coachella Valley in Riverside County also are built primarily on a low-density scale. The developing land on the urban fringe, such as the Antelope Valley of Los Angeles County and the Victorville-Hesperia area, Lucerne Valley, and Yucca Valley of San Bernardino County, also are primarily low-density residential. The Imperial Valley in Imperial County is primarily an agricultural region with a growing, yet still regionally small, population that lives in primarily low-density developments. According to the California Department of Conservation, as of 2018 there are approximately 2.6 million acres of agricultural lands in the SCAG region: approximately 1.1 million acres of farmland and approximately 1.50 million acres of grazing land/rangeland (DOC 2023) (also see relevant discussion in Section 3.2, *Agriculture and Forestry Resources*, of this 2024 PEIR).

VISUAL RESOURCES

The loss of natural aesthetic features, reduction of vistas, or the introduction of contrasting urban features may diminish the value of natural resources in the region. Natural features include land and open spaces such as park and open space areas, mountain areas, and natural water sources. Included, as natural features, are elements of the visual environment, which have been constructed to resemble natural features, such as man-made lakes.

Views of the various mountain ranges from locations in the region are considered valuable visual resources, as are views of the coast from locations in Ventura, Los Angeles, and Orange counties (Los Angeles County Department of Regional Planning 2022; Orange County Public Works OC Development Services 2012; Ventura County 2020).

Other natural features that may contain visual significance include the numerous rivers, streams, creeks, lakes, and reservoirs located within the region. Features of the built environment that may have visual significance include individual or groups of structures that are distinctive due to their aesthetic, historical, social, or cultural significance or characteristics. Examples of the visually significant built environment may include bridges or overpasses, architecturally appealing buildings or groups of buildings, landscaped freeways, or a location where an historic event occurred.

SCENIC VISTAS

There are nine Caltrans-designated vista points in the SCAG region (**Table 3.1-3, Caltrans Designated Vista Points**).

TABLE 3.1-3 Caltrans Designated Vista Points

COUNTY	NAME	ROUTE	POST MILE
Los Angeles	Lamont Odett	14	57.8
Riverside	Coachella Valley	74	87.6
	Indian Hill Road	243	13.8
San Bernardino	Bear Valley Dam	18	44.2
	Donald S. Wieman	18	21.4
	Eyes of the World	38	14.2
	Mill Creek	38	10.7
	Silverwood Lake	138	3.6
	Silverwood Lake 2	138	3.6

Source: Caltrans 2015a

There are no county-designated Vista Points within the county general plans for Imperial, Orange, Riverside, San Bernardino, or Ventura Counties; however, these general plans emphasize protection of scenic vistas from scenic routes/drives/highways and identify scenic resources and landmarks for which the scenic background and natural resources of the area should be preserved. Los Angeles County has designated scenic vistas within the Santa Monica Mountains Local Coastal Program (Los Angeles County Department of Regional Planning 2018).

SCENIC RESOURCES WITHIN SCENIC HIGHWAY CORRIDORS

There are two National Scenic Byways, two Bureau of Land Management (BLM) Back Country Byways, and three National Forest Scenic Byways in the SCAG region:

- National Scenic Byways
 - Arroyo Seco Historic Parkway – Route 110 (9.5 miles) (Los Angeles County) (America’s Scenic Byways 2023a)
 - Parker Dam Road (11 miles) (San Bernardino County) (America’s Scenic Byways 2023b)
- State Scenic Byways
 - Twentynine Palms Highway – Route 62 (9 miles) (Riverside County) (America’s Scenic Byways 2023c)

- Ramona Expressway (24 miles) (Riverside County) (America’s Scenic Byways 2023d)
- Route 74 (68 miles) (Riverside County) (America’s Scenic Byways 2023e)
- BLM Scenic Areas and Back Country Byways
 - Bradshaw Trail Back Country Byway (67 miles) (Riverside County, Imperial County) (BLM 2023a)
 - Wild Horse Canyon Scenic Backcountry Byway (11 miles) (San Bernardino County) (America’s Scenic Byways. 2023f)
- National Forest Scenic Byways
 - Angeles Crest Scenic Byway (Route 2) (America’s Scenic Byways 2023g)
 - Rim of the World Scenic Byway (107 miles) (San Bernardino County) (America’s Scenic Byways 2023h)
 - Palms to Pines Scenic Byway (67 miles) (Riverside County) (America’s Scenic Byways 2023i)

Portions of eight State Routes in the SCAG region have been designated by Caltrans as State Scenic Highways (**Table 3.1-4, Officially Designated State Scenic Highways**, and **Map 3.1-1, State Designated and Eligible Scenic Highways and Vista Points**).

TABLE 3.1-4 Officially Designated State Scenic Highways

ROUTE	COUNTY	LOCATION	MILES
2	Los Angeles	From 2.7 miles north of State Route 210 (at La Canada) to San Bernardino County Line	55.1
27	Los Angeles	Topanga Canyon State Scenic Highway	2.5
33	Ventura	From 6.4 miles north of SR-150 to Santa Barbara County Line	39.9
38	San Bernardino	From 0.1 mile east of South Fork Campground to 2.9 miles south of SR-18 at State Line	15.7
62	Riverside	From SR-10 north to the San Bernardino County Line	9.2
74	Riverside	From western boundary of the San Bernardino National Forest to SR-111 in Palm Desert	47.7
91	Orange	From SR-55 to eastern city limit of Anaheim	4.2
243	Riverside	From SR-74 to the Banning City limit	28.2

Source: Caltrans 2019a

Additional roadways in the SCAG region have been designated by Caltrans as County Scenic Highways (**Table 3.1-5, Officially Designated County Scenic Highways**).

TABLE 3.1-5 Officially Designated County Scenic Highways

ROUTE	COUNTY	LOCATION	MILES
Mulholland Highway	Los Angeles	From SR-1 to Kanan Dume Road, and from west of Cornell Road to east of Las Virgenes Road	19.0
Malibu Canyon-Las Virgenes Highway	Los Angeles	From SR-1 to Lost Hills Road	7.4

Source: Caltrans 2015

There are 40 additional portions of roadways in the SCAG region that have been identified by Caltrans as being eligible for designation as a State Scenic Highways (**Table 3.1-6, Roadways Eligible for State Scenic Highway Designation**).

TABLE 3.1-6 Roadways Eligible for State Scenic Highway Designation

ROUTE	COUNTY	LOCATION	POST MILES	MILES
1	Orange/Los Angeles	I-5 SO San Juan Cap./SR-19 Nr Long Beach	0.0–3.6	3.6
1	Los Angeles/Ventura	SR-187 Nr Santa Monica/SR-101 Nr El Rio	32.2–21.1	11.1
2	Los Angeles/San Bernardino	SR-210 in La Cañada. Flintridge/SR-138 Via Wrightwood	22.9–6.36	16.54
5	San Diego/Orange	Opposite Coronado/SR-74 Nr San Juan Cap	R14.0–9.6	4.4
5	Los Angeles	I-210 Nr Tunnel Station/SR-126 Nr Castaic	R44.0–R55.5	11.5
8	San Diego/Imperial	Sunset Cliffs/SR-98 Nr Coyote Wells	T0.0–R10.0	10
15	San Diego/Riverside	SR-76 Nr San Luis Rey River/SR-91 Nr Corona	R 46.5–41.5	5.0
15	San Bernardino	SR-58 Nr Barstow/SR-127 Nr Baker	76.9–R136.6	59.7
18	San Bernardino	SR-138 Nr Mt Anderson/SR-247 Nr Lucerne Valley	R17.7–73.8	56.1
27	Los Angeles	SR-1/Mulholland Dr.	0.0–11.1	11.1
30	San Bernardino	SR-330 Nr Highlands/SR-10 Nr Redlands	T29.5–33.3	3.8
33	Ventura	SR-101 Nr Ventura/SR150	0.0–11.2	11.2
33	Ventura/Santa Barbara/ San Luis Obispo	SR-150/SR-166 in Cuyama Valley	11.2–11.5	0.3
38	San Bernardino	SR-10 Nr Redlands/SR-18 Nr Fawnskin (All)	0.0–49.5	49.5
39	Los Angeles	SR-210 Nr Azusa/SR-2	14.1–44.4	30.3
40	San Bernardino	Barstow/Needles	0.0–154.6	154.6
57	Orange/Los Angeles	SR-90/SR-60 Nr City of Industry	19.9–R4.5	15.4
58	Kern/San Bernardino	SR-14 Nr Mojave/I-15 Nr Barstow	112.0–R4.5	107.5
62	Riverside/San Bernardino	I-10 Nr Whitewater/Arizona SL (All)	0.0–142.7	142.7
71	Riverside	SR-91 Nr Corona/SR-83 NO Corona	0.0–G3.0	3.0
74	Orange/Riverside	I-5 Nr San Juan Capistrano/I-111 (All)	0.0–R96.0	96.0
78	San Diego/Imperial	SR-79 Nr Santa Ysabel/SR-86 Passing Nr Julian	51.1–13.2	37.9
79	San Diego/Riverside	SR-78 Nr Santa Ysabel/SR-371 Nr Aguanga	20.2–2.3	17.9
91	Orange/Riverside	SR-55 Nr Santa Ana Canyon/I-15 Nr Corona	R9.2–7.5	1.7
91	Orange	SR-55/E CiL Anaheim	R9.2–13.4	4.2
101	Los Angeles/Ventura/Santa Barbara/San Luis Obispo	SR-27 (Topanga Canyon Blvd) SR-46 Nr Paso Robles	25.3–57.9	27.6
111	Imperial/Riverside	Bombay Beach-Salton Sea SP/SR-195 Nr	57.6–18.4	39.2
111	Riverside	SR-74 Nr Palm Desert/I-210 Nr Whitewater	39.6–R63.4	23.8
118	Ventura/Los Angeles	SR-23/Desoto Ave. Nr Browns Canyon	17.4–R2.7	14.7
126	Ventura/Los Angeles	SR-150 Nr Santa Paula/I-5 Nr Castaic	R12.0–0R5.8	6.2
127	San Bernardino/Inyo	I-15 Nr Baker/Nevada Sl (All)	L0.0–49.4	49.4

ROUTE	COUNTY	LOCATION	POST MILES	MILES
138	San Bernardino	SR-2 Nr Wrightwood/SR-18 Nr Mt Anderson	6.6–R37.9	31.3
142	San Bernardino	Orange CL/Peyton Dr.	0.0–4.4	4.4
150	Santa Barbara/Ventura	SR-101 Nr Ventura/SB CL/SR-126 Nr Santa	0.0–34.4	34.4
173	San Bernardino	SR-138 Nr Slvrwd Lk/SR-18 SO Lk Arwhd (All)	0.0–23.0	23.0
210	Los Angeles	I-5 Nr Tunnel Station/SR-134	R0.0–R25.0	25.0
215	Riverside	SR-74 Nr Romoland/SR-74 Nr Perris	23.5–26.3	2.8
243	Riverside	SR-74 Nr Mountain Cntr/I-210 Nr Banning (All)	0.0–29.7	29.7
247	San Bernardino	SR-62 Nr Yucca Valley/I-15 Nr Barstow (All)	0.0–78.1	78.1
330	San Bernardino	SR-30 Nr Highland/SR-18 Nr Running Springs (All)	29.5–44.1	14.6

Source: Caltrans 2019a

As of 2015, there are 5,045 state agency bridges on the California State Highway system and 3,699 local agency bridges that are located within the SCAG region, eight of which are listed on the National Register of Historic Places (NRHP), 80 of which are eligible for NRHP, five of which are potentially eligible for NRHP, 286 for which the historical significance has not been determined, and 8,365 of which are not eligible for NRHP (**Table 3.1-7, Historical Significance of State and Local Agency Bridges**) (Caltrans 2015b, 2019b).

TABLE 3.1-7 Historical Significance of State and Local Agency Bridges

COUNTY	LISTED ON NATIONAL REGISTER OF HISTORIC PLACES	ELIGIBLE FOR NRHP	POTENTIALLY ELIGIBLE FOR NRHP	HISTORIC SIGNIFICANCE NOT DETERMINED AS OF AUGUST 2015	NOT ELIGIBLE FOR NRHP	TOTAL
Imperial	0	0	0	16	414	430
State agency	0	0	0	8	283	291
Local agency	0	0	0	8	131	139
Los Angeles	7	69	4	81	3,824	3,985
State agency	0	42	0	70	2,099	2,211
Local agency	7	27	4	11	1,725	1,774
Orange	0	2	0	9	1,204	1,215
State agency	0	2	0	6	652	660
Local agency	0	0	0	3	552	555
Riverside	1	5	0	29	1,118	1,153
State agency	0	1	0	23	627	651
Local agency	1	4	0	6	491	502
San Bernardino	0	3	1	138	1,308	1,450
State agency	0	1	1	25	886	913
Local agency	0	2	0	113	422	537
Ventura	0	1	0	13	497	511
State agency	0	0	0	13	306	319
Local agency	0	1	0	0	191	192

COUNTY	LISTED ON NATIONAL REGISTER OF HISTORIC PLACES	ELIGIBLE FOR NRHP	POTENTIALLY ELIGIBLE FOR NRHP	HISTORIC SIGNIFICANCE NOT DETERMINED AS OF AUGUST 2015	NOT ELIGIBLE FOR NRHP	TOTAL
SCAG Region	8	80	5	286	8,365	8,744
State agency	0	46	1	145	4,853	5,045
Local agency	8	34	4	141	3,512	3,699

Source: [Caltrans 2015b](#); [Caltrans 2019b](#)

TRANSPORTATION FACILITIES

As noted above in Table 3.1-3 through Table 3.1-6, many public views in the SCAG region are from arterial and freeway routes and the freeways themselves are a visual component of the landscape. The location of roadways largely determines which parts of the region will be seen, with some roadways gaining notoriety from the views they provide, such as the Pacific Coast Highway, which runs along the entire coastal side of the SCAG region. Elements of the transportation infrastructure, including roadways, airports, railroads, and seaports are a component of the visual character of the urban environment. A discussion of these components is provided below.

FREEWAYS, HIGHWAYS, AND ROADWAYS

In urban areas, roadway rights-of-way make up approximately 20 to 30 percent of the total land area. Because most vehicular movement occurs along transportation corridors, their placement largely determines what parts of the SCAG region will be seen by persons traveling in the area. In the SCAG region, arterials and freeways constitute a major component of the existing visual environment. The visual character of freeways themselves depends on the scale at which observers view them. Above and from a distance, freeway traffic forms a compelling contribution to the scenery, whether by lights moving at night or by the changing visual character of daytime traffic. From below and at close range, freeways (including associated sound walls and safety railings) are often barriers to views of near and distant scenery. Arterials and freeways make up a major component of the existing visual environment of the region. Arterials in the SCAG region offer a variety of visual experiences from the uncrowded, narrow winding roads in mountain areas to the high-volume urban streets in the densely populated areas of Los Angeles and Orange Counties. Many arterials have been built connecting urban concentrations with natural areas with key scenic resources. Examples include:

- The Pacific Coast Highway 1 (PCH) traverses the entire coastal side of the SCAG region. Proceeding northward, PCH enters the region at Dana Point in Orange County and follows the shoreline of the Pacific Ocean, illuminating its beaches and rugged cliffs, through Los Angeles and Ventura Counties, where it continues on to Northern California (America’s Scenic Byways 2023j).
- The 50-mile Santa Monica Mulholland Scenic Corridor runs westward from the Hollywood Freeway (U.S. 101), winding its way through the Santa Monica Mountains to Leo Carrillo State Beach in Malibu (Mountains Recreation & Conservation Authority 2023).
- The 15-mile Palos Verdes Scenic Drive begins at Palos Verdes Estates and goes to Point Fermin Park in the community of San Pedro. The cliff-top section of the road offers many scenic views.

In addition, county and local roads in foothill and mountain areas also afford panoramic views throughout the region. Examples of areas with these types of views include:

- Los Angeles County: Santa Monica Mountains, San Gabriel Mountains, Verdugo Mountains, Santa Susana Mountains (also in Ventura County), San Jose Hills, Puente Hills
- Orange County: San Joaquin Hills, Anaheim Hills, and Santa Ana Mountains
- Riverside County: San Jacinto Mountains
- San Bernardino County: Chino Hills and San Bernardino Mountains
- Ventura County: Simi Hills, Santa Susana Mountains, Santa Monica Mountains

Mountainous portions of Imperial County are not generally accessible from county roads. Large areas in the Chocolate Mountains (located in southern Riverside County and northern Imperial County) are owned by the military and are not accessible to civilians.

RAIL AND RAILYARDS

Passenger rail operations (i.e., Amtrak, Metrolink, Metro) occupy existing railroad tracks and right-of-way areas and generally limited in terms of routes and overall passengers served. Except in predominantly residential areas, the view of passenger trains (at-grade or elevated guideways) is not generally considered visually offensive to most viewers. Conversely, passenger rail operations afford riders a variety of views. In Ventura County, for example, Amtrak provides scenic views of the coastline and adjacent mountains. Because of their prevalence in the urban core at relatively low elevations, passenger rail operations in the SCAG region provide accessible views of scenic resources comparable to those associated with freeways, highways, and roadways.

Freight railroads and associated rail yards are often considered to have a negative aesthetic effect in many urban communities. This perception is largely due to graffiti associated with rail cars and rail yards, unsightly building facilities, and viewshed blockage. Additional factors include building scale and utilitarian architectural style, visual intrusiveness on surrounding land uses, and community context (i.e., predominately industrial vs. residential uses). Negative opinions are particularly acute within adjacent residential communities. Views of freight railroads (i.e., rail cars) and rail yard facilities are largely limited, due, in part, to topography, security fencing, and limits on operation within urban communities. However, some facilities are visible from adjacent roadways, along freeways, highways, railroad rights-of-way, and hillside areas. Rail yard facilities within the SCAG region are predominately located within industrial core areas and include the Port of Los Angeles, Long Beach, East Los Angeles, Hobart, City of Industry (Los Angeles County), West Colton, and Burlington Northern/Santa Fe (BNSF) (San Bernardino County). Additional freight facilities are also located in less densely populated areas such as Barstow and Yermo (San Bernardino County).

AIRPORTS

The SCAG region includes numerous airports serving both commercial and private airplane flights. Major commercial airports in the region include Los Angeles International Airport (LAX), Palmdale Airport, Long Beach Airport, and Burbank Airport in Los Angeles County; John Wayne Airport in Orange County; Ontario International Airport, San Bernardino International Airport, and Southern California Logistics Airport in San Bernardino County; and Palm Springs International Airport and March Inland Port in Riverside County. From an aesthetic resources standpoint, the proximity of aviation facilities to residential areas is considered to have a negative impact due to the industrial nature of aviation facilities and their attraction of related industrial uses including warehousing and freight-based businesses. Direct views of aviation operations at airports, views of takeoffs and landings, and the

prevalence of trucks and vehicular congestion near aviation facilities all contribute to the perceived negative aesthetic effects of airports on residential areas. Although, some people enjoy watching planes take off and land.

Within the SCAG region, proximal views of takeoffs and landings of large commercial aircraft occur near all major commercial airports. Proximal, but temporary, passing views of aviation facilities and airport operations are also prevalent from highways and major arterials serving these facilities. Near LAX, residents of Inglewood, El Segundo, Playa del Rey, and Westchester are exposed to these types of views. Residential areas in Palmdale, Lancaster, and unincorporated Los Angeles County are proximal to flights at the Palmdale facility. Long Beach and Signal Hill residents have views of takeoffs and landings at the Long Beach Airport. Residents in Tustin, Newport Beach, Irvine, and Costa Mesa are located in proximity to the John Wayne Airport. Residential and resort housing is located close to the Palm Springs Airport. Moreno Valley and Riverside residents have the closest views of flights from March Inland Port. Residential areas in San Bernardino, Colton, and Redlands have views of flights at the San Bernardino International Airport. Ontario residents have the closest views of flights from the Ontario International Airport. Victorville residents have the closest views of flights from the Southern California Logistics Airport.

To a lesser degree, similar conditions are experienced near general aviation facilities throughout the region, although air traffic is considerably less than at commercial aviation facilities. In general, there is less air traffic and, therefore, less population exposed to this traffic at general aviation facilities than near commercial facilities. However, several general aviation facilities (e.g., Santa Monica, Hawthorne, Van Nuys) are located near urban residential areas.

PORTS

The adjacent shipping ports of Los Angeles and Long Beach represent the major shipping location in the SCAG region and one of the most important shipping locations in the United States. Smaller ports include Port Hueneme in Ventura County, Redondo Beach Harbor in Los Angeles County, and Dana Point Harbor in Orange County. Proximity to rail and air transport facilities increases the utility and importance of these ports. Because of security and safety concerns, ports generally block public access to the waterfront within the port, limiting visual access as well. However, provisions of the California Coastal Act provide for public access to the coast elsewhere in the SCAG region.

Port facilities in Los Angeles and Long Beach offer views of container terminals, cranes, other types of loading equipment, and ships carrying cargo in and out of the ports. Operations in the Port of Los Angeles are visible in portions of the San Pedro area (City of Los Angeles). Port facilities in Long Beach are widely visible from downtown Long Beach, portions of West Long Beach, and along the shoreline south of downtown. Port of Long Beach facilities are also visible from two of the city's major tourist attractions along Queensway Bay: the Queen Mary and the Aquarium of the Pacific.

LIGHT AND GLARE

The more urbanized areas of the SCAG region tend to produce high levels of nighttime light, daytime glare from reflective materials such as glass building facades and wide stretches of asphalt roads, and shadows on adjacent outdoor land uses from tall buildings and structures (**Table 3.1-8, Existing Sources of Nighttime Light in SCAG Region**). Suburban areas tend to produce high levels of nighttime light and daytime glare but lower levels of shadows on shade-sensitive uses due to lower building heights. Rural areas tend to produce low levels of nighttime light; low to moderate levels of daytime glare, as agricultural structures and paved roads produce some glare; and very low levels of shadows from taller structures due to the distance between structures.

TABLE 3.1-8 Existing Sources of Nighttime Light in SCAG Region

COUNTY	APPROXIMATE PERCENTAGE OF LIGHT AND DARK SKY AREA AT NIGHT	CHARACTERIZATION OF NIGHTTIME LIGHT LEVELS
Imperial	5% light; 95% dark	Very low throughout most of county, with brightly lit areas in the urbanized southern portion of the county adjacent to the City of Mexicali, scattered in the locations of larger communities, and in the city of El Centro.
Los Angeles	50% light; 50% dark	High levels of nighttime light in the urbanized southern half of the county including the cities of Long Beach, Los Angeles, and Pomona. The cities of Santa Clarita, Palmdale and Lancaster are also brightly lit areas within the county. The darker areas include the Santa Monica Mountains, Los Padres National Forest, Angeles National Forest, and the rural desert communities in the northern portion of the county.
Orange	80% light; 20% dark	High levels of nighttime light in the county, with two darker areas: the mountains northwest of Laguna Beach and Cleveland National Forest on the eastern side of the county.
Riverside	15% light; 85% dark	Very low throughout most of county, with brightly lit areas in the urbanized western portion of the county including the city of Riverside, scattered in the locations of larger communities, and in the cities of Palm Springs and Temecula.
San Bernardino	5% light; 95% dark	Very low throughout most of county, with brightly lit areas in the urbanized southwestern portion of the county, scattered in the locations of larger communities, and in the city of Victorville.
Ventura	25% light; 75% dark	Very low throughout most of county, with brightly lit areas in the urbanized southern portion of the county, scattered in the locations of larger communities, and in the cities of Oxnard and Thousand Oaks. The darker area includes the Los Padres National Forest.

Source: NASA Earth Observatory/NOAA NGDC 2000

Some communities are becoming more sensitive to sources of nighttime lighting and are adopting dark sky ordinances to encourage lower-level lighting to facilitate enjoyment of the nighttime sky (as well as avoiding impacting local observatories), avoid impacts to wildlife and natural areas, encourage energy savings (e.g., City of Malibu and County of Los Angeles (City of Malibu 2018; County of Los Angeles 2012)).

3.1.2 REGULATORY FRAMEWORK

FEDERAL

SECTION 4(F) OF THE U.S. DEPARTMENT OF TRANSPORTATION ACT

Section 4(f) refers to the original section within the U.S. Department of Transportation Act of 1966 that provided for consideration of park and recreation lands, wildlife and waterfowl refuges, and historic sites during transportation project development (FTA 2018). The law, now codified in 49 U.S. Code (USC) §303 and 23 USC §138, applies only to the U.S. Department of Transportation (USDOT) and is implemented by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) through 23 Code of Federal Regulations (CFR) 774. Section 4(f) only applies if the project has a federal nexus (i.e., requires a federal permit or receives federal funds).

In August 2005, Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU; 23 CFR 774) Section 6009(a) amended existing Section 4(f) at both Title 49 USC Section 303 and Title 23 USC Section 138 to simplify the process and approval of projects that have only de minimis impacts on lands impacted by Section 4(f) (FHA 2023a). Under the revised provisions, once USDOT determines that a transportation use of Section 4(f) property results in a de minimis impact, analysis of avoidance alternatives is not required, and the Section 4(f) evaluation process is complete. Section 6009 also required USDOT to issue regulations that clarify the factors to be considered and the standards to be applied when determining if an alternative for avoiding the use of a Section 4(f) property is feasible and prudent. On March 12, 2008, FHWA issued a Final Rule on Section 4(f), which clarified the 4(f) approval process, simplified its regulatory requirements, and moved the Section 4(f) regulation to 23 CFR 774.

INTERMODAL TRANSPORTATION EFFICIENCY ACT, FHWA NATIONAL SCENIC BYWAYS PROGRAM

The FHWA National Scenic Byways Program, which was established in Title 23, Section 162 of the USC under the Intermodal Transportation Efficiency Act of 1991, is a grassroots collaborative effort that designates selected highways as “All American Roads” (a roadway that is a destination unto itself). “America’s Byways” or “National Scenic Byway” is a roadway that possesses outstanding qualities that exemplify regional characteristics (FHA 2023b).

BLM SCENIC AREAS AND BACK COUNTRY BYWAYS

BLM designates some of its holdings as Scenic Areas and some roadways in remote areas as Back Country Byways. The BLM Back Country Byways Program was established in 1989 and is a component of the National Scenic Byways Program (BLM 2023b). The counties of Imperial, Riverside, and San Bernardino in the SCAG region include land with such BLM designations.

UNITED STATES FOREST SERVICE NATIONAL SCENIC BYWAYS PROGRAM

The United States Forest Service (USFS) also has a National Scenic Byways Program, independent from the BLM program, which was established in 1995 under the Intermodal Transportation Efficiency Act of 1991 to indicate roadways of scenic importance that pass through national forests (USFS 2023). The SCAG region includes Forest Service Scenic Byways in the counties of Los Angeles, Riverside, San Bernardino, and Ventura.

NATIONAL TRAILS SYSTEM ACT

The National Trails System Act (Public Law 90-543) was established by Congress in 1968 to establish a network of scenic, historic, and recreational trails (National Park Service 2018). The Act defined four categories of national trails: recreation trails, scenic trails, historic trails, and connecting or side trails. Trails within park, forest, and other recreation areas administered by the Secretary of the Interior or the Secretary of Agriculture or in other federally administered areas may be established and designated as “National Recreation Trails” by the appropriate Secretary. Since the National Trails System Act was enacted, the list of qualifying national scenic trails and national historic trails has grown from the initial two trails (the Application National Scenic Trail and Pacific Crest National Scenic Trail) to the current list, which includes 11 national scenic trails and 19 historic trails. The Pacific Crest National Scenic Trail passes through Los Angeles County, Riverside County, and San Bernardino County in the SCAG region.

NATIONAL FORESTS LAND MANAGEMENT PLANS

Each of the four Southern California national forests (Cleveland National Forest, Los Angeles National Forest, San Bernardino National Forest, and Los Padres National Forest) is included in the Southern California National Forests Vision. The Southern California National Forests Vision (forest plans) has created individual land management plans for each of the four Southern California national forests. The plans include a section for design criteria and a map of scenic integrity objectives for each national forest to guide the management of the land and its resources for the next 10 to 15 years (USFS 2005a).

STATE

CALTRANS CALIFORNIA SCENIC HIGHWAYS PROGRAM

The California Scenic Highways Program was created in 1963 under Senate Bill (SB) 1467, which added Sections 260 through 263 to the Streets and Highways Code, to preserve and protect scenic highway corridors from change that would reduce the aesthetic value of lands adjacent to highways (Caltrans 2023, 2008). To be included in the state program, the highways proposed for designation must meet Caltrans' eligibility requirements and have visual merit. County highways and roads that meet the Caltrans Scenic Highways Program standards may also be officially designated. (See also discussion above in the Environmental Setting for an identification of the current state scenic and eligible highways.)

The state laws governing the Scenic Highway Program are provided in California Streets and Highways Code Sections 260 through 263. The State Scenic Highway System includes a list of highways that have been designated by Caltrans as scenic highways or are eligible for designation as scenic highways. These highways are designated in Section 263 of the Streets and Highways Code. Scenic highway designation can offer the following benefits:

- Protection of the scenic values of an area
- Enhancement of community identity and pride, encouraging citizen commitment to preserving community values
- Preservation of scenic resources to enhance land values and make the area more attractive
- Promotion of local tourism that is consistent with the community's scenic values

A scenic corridor is the land generally adjacent to and visible from the highway and is identified by using a motorist's line of vision. A reasonable boundary is selected when the view extends to the distant horizon. Caltrans outlines the following minimum requirements for scenic corridor protection (Section 261 of the Streets and Highways Code): (1) regulation of land use and intensity (density) of development, (2) detailed land and site planning, (3) control of outdoor advertising, (4) careful attention to and control of earthmoving and landscaping, and (5) the design and appearance of structures and equipment. Caltrans defines non-compliance for a Corridor Protection Program as a program that (1) no longer complies with the five legislatively required elements under Section 261 of the Street and Highways Code, (2) no longer affords protection because required elements have been amended or changed, or (3) no longer is being enforced by the local governing body.

CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS: TITLE 24, PART 6 (CALIFORNIA ENERGY CODE)

The California Energy Code (Title 24, Section 6) was created as part of the California Building Standards Code (Title 24 of the California Code of Regulations) by the California Building Standards Commission in 1978 to

establish statewide building energy efficiency standards to reduce California’s energy consumption (California Building Standards Commission 2023). California's Building Energy Efficiency Standards are updated on an approximately three-year cycle; the 2022 Standards went into effect on January 1, 2023. These standards include mandatory requirements for efficiency and design of lighting control devices and mandatory requirements for indoor and outdoor lighting systems in residential and non-residential buildings, and hotel or motel buildings.

SENATE BILL 743

Changes to CEQA pursuant to new state law, SB 743 (Statutes 2013, Chapter 386), require the Governor’s Office of Planning and Research (OPR) to develop a new approach to analyzing transportation impacts under CEQA and create a new exemption for certain projects that are consistent with an adopted specific plan. The exemption applies if the project is (a) within a transit priority area, (b) consistent with a specific plan for which an EIR has been certified, and (c) consistent with an SCS. SB 743 further provides that aesthetic and parking impacts of a project shall not be considered significant impacts on the environment if the project is (1) a residential, mixed-use residential, or employment center project, and (2) located on an infill site within a transit priority area. The exemption for aesthetic impacts does not include impacts to historic or cultural resources. Local governments retain their ability to regulate a project’s transportation, aesthetics, and parking impacts outside of the CEQA process pursuant to local design review ordinances or other discretionary powers.

LOCAL

The SCAG region spans six counties and 191 cities, all of which have general plans containing policies related to scenic resources (**Table 3.1-9, Summary of County and City General Plan Policies and Ordinances in the SCAG Region**). Additional plans and ordinances at the master plan level, city level, and specific plan level may also apply within the SCAG region.

TABLE 3.1-9 Summary of County and City General Plan Policies and Ordinances in the SCAG Region

COUNTY	COUNTY AND CITY POLICIES AND ORDINANCES
Imperial	<p>Scenic Vistas: None designated in County or cities</p> <p>Scenic Highways: Circulation and Scenic Highways Element in the Imperial County General Plan^a</p> <p>Visual Character/Quality: Conservation/Open Space Element of the Imperial County General Plan^b and City General Plans, Imperial County Code of Ordinances Chapters 12.44, Wildlife Protection, and 12.48, Wild Flowers and Trees</p> <p>Light and Glare: No County-level ordinances, some cities have General Plan policies or Ordinances^c</p> <p>Shade and Shadow: No County-adopted standards</p>
Los Angeles	<p>Scenic Vistas: Designated Public Viewing Areas within Santa Monica Mountains Local Coastal Program,^d some cities have designated scenic views within City General Plans</p> <p>Scenic Highways: Conservation and Open Space Element of the Los Angeles County General Plan,^e some cities have designated scenic highways in Conservation and Open Space Elements and Transportation Elements of City General Plans</p> <p>Visual Character/Quality: Conservation and Open Space Element of the Los Angeles County General Plan and City General Plans; County and City Tree and Landscaping Ordinances</p> <p>Light and Glare: 2012 Los Angeles County Rural Outdoor Lighting District Ordinance^f and some City dark sky ordinances</p> <p>Shade and Shadow: No County-adopted standards</p>

COUNTY	COUNTY AND CITY POLICIES AND ORDINANCES
Orange	<p>Scenic Vistas: None designated</p> <p>Scenic Highways: Transportation Element of the Orange County General Plan,^g some cities have designated scenic highways identified in General Plans</p> <p>Visual Character/Quality: Resources Element of the Orange County General Plan^h and City General Plans</p> <p>Light and Glare: County-level ordinances under review,^c some cities have General Plan policies or ordinances</p> <p>Shade and Shadow: No County-adopted standards</p>
Riverside	<p>Scenic Vistas: None designated</p> <p>Scenic Highways: Multipurpose Open Space Element of the County of Riverside General Plan,ⁱ some cities have designated scenic highways identified in General Plans</p> <p>Visual Character/Quality: Riverside County Ordinance No. 559 Regulating the Removal of Trees, Multipurpose Open Space Element of the County of Riverside General Plan,ⁱ and City General Plans</p> <p>Light and Glare: 1988 Riverside County Ordinance No. 655, some cities have General Plan policies or Ordinances^b</p> <p>Shade and Shadow: No County-adopted standards</p>
San Bernardino	<p>Scenic Vistas: None designated</p> <p>Scenic Highways: Natural Resources Element of the San Bernardino County General Plan,^j some cities have designated scenic highways identified in General Plans</p> <p>Visual Character/Quality: San Bernardino County Development Code Chapter 88.01, Plant Protection and Management, Natural Resources Element of the County of San Bernardino General Plan,^j and City General Plans</p> <p>Light and Glare: 2003 San Bernardino County Night Sky Protection Ordinance No. 3900; some cities have General Plan policies or Ordinances^b</p> <p>Shade and Shadow: No County-adopted standards</p>
Ventura	<p>Scenic Vistas: None designated</p> <p>Scenic Highways: Conservation and Open Space Element of the Ventura County General Plan,^k some cities have designated scenic highways identified in General Plans</p> <p>Visual Character/Quality: Ventura County Tree Protection Ordinance, Conservation and Open Space Element of the Ventura County General Plan,^k and City General Plans</p> <p>Light and Glare: Some cities have General Plan policies or Ordinances (no County-level ordinances)^b</p> <p>Shade and Shadow: No County-adopted standards</p>

- Sources: a. Imperial County Planning & Development Services 2008
b. Imperial County Planning & Development Services 2016
c. Skykeepers 2023
d. Los Angeles County Department of Regional Planning 2018
e. Los Angeles County Department of Regional Planning 2022
f. Los Angeles County Department of Regional Planning 2012
g. Orange County Public Works OC Development Services 2012a
h. Orange County Public Works OC Development Services 2012b
i. Riverside County 2015
j. San Bernardino County, Land Use Services Division 2020
k. Ventura County 2020

3.1.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to aesthetics if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of public views (public views are those that are experienced from publicly accessible vantage points). In an urbanized area, would the Plan conflict with applicable zoning and other regulations governing scenic quality; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis of aesthetics considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

Projects implemented as a result of the Plan could result in changes to scenic vistas, scenic highway corridors, visual character, nighttime light, and daytime glare levels in the SCAG region compared to existing (2022) conditions. Direct impacts were evaluated based on the location of these projects and their proximity to aesthetic scenic resources and sensitive uses, such as scenic vistas. Projects which would be constructed adjacent or in proximity to aesthetic scenic resources or sensitive uses could result in direct impacts to scenic resources. Indirect impacts were evaluated based on land use pattern assumptions that protected lands would remain protected and strategies intended to minimize growth in Green Region Resource Areas (GRRAs) and concentrate new growth in existing urbanized areas or opportunity areas such as Priority Development Areas (PDA).

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). As discussed in Section 3.0, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. Finally, if SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT AES-1 **Potential to have a substantial adverse effect on a scenic vista.**

Significant and Unavoidable Impacts – Mitigation Required

Implementation of the Plan may lead to the conversion of open space or vacant lands to new uses. Areas potentially affected include designated open space visible from USFS, Caltrans, county, and city designated scenic vistas.

Implementation of the Plan could result in both short-term and long-term visual impacts by blocking views from Scenic Byways or Caltrans, county, and/or city designated scenic vista points. For purposes of this 2024 PEIR, public views (i.e., from look-outs, roadways, parks, and other public places) are analyzed for visual impacts. High scenic integrity is a USFS management objective for conditions where human activities are not visually evident, and the valued (desired) landscape character “appears” intact or unaltered (USFS 2005b).

Construction of new transportation facilities, expansion of existing facilities, potential development, or growth in previously undisturbed sites could block or impede views of scenic resources in a given area. For example, construction of highways, connectors, interchanges, goods movement roadway facilities, and sound walls could block or impede views of mountains, oceans, or rivers. Plan policies and strategies may shift growth to urban areas resulting in impairment of urban views – including views of distant mountains as well as views of historical resources that are more frequently located within urban areas. This could occur as a result of increased density in PDAs or other areas with views of scenic elements such as the San Bernardino, Santa Monica, or San Gabriel Mountains.

Construction impacts, although short-term, could also result in views blocked by construction equipment and scaffolding. Removal of landscaping, temporary route changes, temporary signage, exposed excavation activities and slope faces with contrasting soil colors, and construction staging areas could also block views. Use of best management practices (BMP) during construction such as locating construction staging areas in less visible locations (given other environmental considerations such as avoiding sensitive habitat, etc.), fencing and/or screening staging areas, and revegetation of exposed slopes at the earliest possible opportunity would minimize impacts. However, even with these typical practices, short-term visual impacts would often be unavoidable.

Development in floodplains, wetlands, wooded areas, coastal bluffs, lagoons, reservoirs, regional parks, recreational areas, agricultural lands, or in areas that include steep slopes or scenic vistas has the potential to adversely impact the region’s visual resources by blocking such scenic vistas. Specifically, several transportation project types included in the Plan could have the potential to create a significant visual impact, such as highway projects involving noise barriers that could block views; construction that involves cut and fill within the viewshed of Caltrans, county, or city designated scenic vistas; or construction of tall structures in urban areas that obstruct views. Additionally, grade separated facilities for rail or buses, goods movement roadway facilities, and widened roads with high-occupancy vehicle (HOV) and high-occupancy toll (HOT) lanes and connectors could also result in visual impacts if they block or impede vistas of surrounding scenic resources during and after construction.

Highway widening projects such as SR-74 in Riverside County and I-10 in San Bernardino County, also have the potential to impact visual resources. Creation of aerial structures over the top of existing transportation features,

such as connectors, has a very high potential to create visual impacts to panoramic views, views of significant landscape features, or landforms.

Several transit projects, if implemented, would affect the region's visual environment. As discussed above, the Plan includes transportation projects involving both new facilities and modifications to existing facilities. The Plan also includes various transit capital projects. New light rail transit projects in Los Angeles County, such as the Sepulveda Pass Transit Corridor, may include some elevated rail sections which could affect views. Many of the transit projects included in the Plan, if implemented, would be located in existing urbanized areas and new growth opportunity areas that would block views of historic resources. A few transportation projects, such as the Eastside Transit Corridor Phase 2, are located underground and thus would not affect scenic vistas.

Goods movement highway facilities, such as the 241/91 Express Lanes (HOT) connector in Orange County, are examples of transportation projects that would obstruct scenic views. Adding new goods movement highway facilities may require construction of new roadway facilities and acquisition of right-of-way property that would result in the loss of vegetation along these routes and changes in topography of the given area depending on the route alignment. Elevated highway and roadway facilities would block views of the San Gabriel Mountains, Whittier Hills, Puente Hills, San Bernardino Mountains, and Jurupa Mountains, depending on the alignment chosen.

Construction of transportation projects and facilities that involve modifications such as widening or upgrading existing roadways and safety improvements would generally not significantly impact the visual environment. These modification projects would most likely occur within existing highway and roadway facilities, although they could require acquisition of right-of-way property. Such changes likely would not block or impede views of scenic resources or views from designated scenic vistas beyond existing conditions.

Modifications to existing transportation projects consist of improvements to existing highways, HOV lanes, HOT lanes, toll lanes, arterials, interchanges, bridges and grade crossings, sound wall retrofitting, and improvements to transit rail and bus services. Impacts from transportation modification projects would generally be less substantial than those created by new transportation projects. These improvements would occur on existing facilities and are not assumed to be designed at a higher elevation and therefore would not be expected to block views of scenic resources. The Plan also includes active transportation projects such as regional greenway networks, regional and local bikeway networks, coastal trails access, and safe routes to school. In many cases, such projects would not only improve access to scenic parts of the region, such as coastal areas, but would also add visual improvements to the region through landscaping, lighting, and sustainable or a complete street approach to design resulting in beneficial impacts.

However, due to the large number of projects that could be implemented under the Plan, it is expected that new and expanded highway and roadway facilities, transit projects, and goods movement projects, or other facilities would result in significant impacts to scenic vistas in the region. Similarly, development patterns and projects that may occur under Plan policies and strategies have the potential to impact scenic vistas by obstructing views. Therefore, the Plan would result in a significant impact to scenic vistas and mitigation is required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

SMM-GEN-1 SCAG shall continue to facilitate interagency cooperation, information sharing, and regional program development, such as through existing planning tools to support local jurisdictions including various applications offered through the [SCAG Regional Data Platform \(RDP\)](#), [SoCal Atlas](#), [HELPR](#), and other GIS resources and data services. For more information, please contact SCAG's Local Information Services Team (LIST) at list@scag.ca.gov.

PROJECT-LEVEL MITIGATION MEASURES

PMM-AES-1 In accordance with provisions of CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B), a lead agency for a project can and should consider mitigation measures to address potential aesthetic impacts to scenic vistas, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:

- a) Use a palette of colors, textures, building materials that are graffiti-resistant, and/or plant materials that complement the surrounding landscape and development.
- b) Use contour grading to better match surrounding terrain. Contour edges of major cut-and-fill to provide a more natural looking finished profile.
- c) Replace and renew landscaping along corridors with road widenings, interchange projects, and related improvements.
- d) Retain or replace trees bordering highways, so that clear-cutting is not evident.
- e) Provide new corridor landscaping that provides appropriate transitions to existing natural and man-made features and is complementary to the dominant landscaping or native habitats of surrounding areas.
- f) Reduce the visibility of construction staging areas by fencing and screening these areas with low contrast materials consistent with the surrounding environment, and by revegetating graded slopes and exposed earth surfaces at the earliest opportunity.
- g) Use see-through safety barrier designs (e.g., railings rather than walls), as appropriate.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to potentially adverse impacts on scenic vistas, due to the regional nature of the analysis, unknown site conditions and project specific-details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT AES-2 Potential to substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

Significant and Unavoidable Impacts – Mitigation Required

The Caltrans State Scenic Highway Program was created by the State Legislature in 1963 to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. The state laws governing the Scenic Highway Program are provided in California Streets and Highways Code Section 260.

The State Scenic Highway System includes a list of highways that have been designated by Caltrans as scenic highways or are eligible for designation as scenic highways. These highways are designated in Section 263 of the Streets and Highways Code. Scenic highway designation can offer the following benefits:

- Protection of the scenic values of an area;
- Enhancement of community identity and pride, encouraging citizen commitment to preserving community values;
- Preservation of scenic resources to enhance land values and make the area more attractive; and
- Promotion of local tourism that is consistent with the community's scenic values.

A scenic corridor is the land generally adjacent to and visible from the highway and is identified by using a motorist's line of vision. A reasonable boundary is selected when the view extends to the distant horizon. Caltrans outlines the following minimum requirements for scenic corridor protection: regulation of land use and density of development; detailed land and site planning; control of outdoor advertising; careful attention to, and control of, earthmoving and landscaping; and careful attention to design and appearance of structures and equipment.

Implementation of the Plan could result in significant impacts to aesthetic and scenic resources if projects would require development of previously undisturbed vacant land, including designated open space that is visible from Officially Designated State Scenic Highways, or if visually intrusive projects were to be constructed in the immediate vicinity of any Officially Designated State Scenic Highways, or Officially Designated County Scenic Highways. While this impact specifically mentions state-designated highways, it is noted that other jurisdictions designate local highways as scenic and development in proximity to these facilities also has the potential to cause adverse impacts; such impacts are captured in Impact AES-3.

If a project is proposed in a scenic corridor, that project would be required to comply with applicable rules and regulations governing the protection of that area as a scenic resource. As most of the transportation projects in the Plan are minor modifications or maintenance within the region's urban areas, most state-designated scenic routes would not be affected.

While there are no restrictions on scenic highway projects, local agencies and Caltrans must work together to coordinate projects and ensure the protection of the scenic value to the greatest extent possible. For example, state law (California Public Utilities Code Section 320) requires the undergrounding of all visible electricity distribution lines within 1,000 feet of a scenic highway (Caltrans 2008). In some cases, local governments have their own land use and site planning regulations to project scenic values along a given corridor.

Additionally, the Plan includes policies and strategies that encourage more compact growth development patterns in the region that aim to shift growth away from GRRAs and concentrate growth in existing urbanized areas with transportation infrastructure in place and opportunity areas, such as PDAs, that have access to multiple modes of transportation or that trip origins and destinations are closer together, allowing for shorter trips.

Impacts would occur if development were to detract or diminish the elements that contribute to the scenic nature of the highway, such as a modern office building or retail center located that could be incongruous with the surrounding scenic nature if not properly shielded from view. Generally, the location of Connect SoCal 2024 transportation projects and anticipated new growth and development would be focused within PDAs, which are typically urban and suburban in character and contain denser development which intermittently blocks views of scenic resources. Therefore, focusing growth primarily within PDAs would reduce the potential to substantially damage scenic resources within state-designated scenic highways. Development is required to comply with local, state, and federal regulations regarding zoning and design requirements. However, any projects proposed within the vicinity of or adjacent to a state designated scenic highways, could have the potential to significantly impact scenic resources, vistas, and other aesthetic resources, regardless of compliance with environmental regulations.

The Plan could impact rock outcroppings (generally in more rural areas) or other scenic elements such as historic resources (Generally in more urban areas) within eligible state scenic highways. Therefore, there is potential for the Plan to affect these resources. As such, impacts are considered significant, and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GEN-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-AES-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to potentially substantially damaging scenic resources within a state scenic highway, due to the regional nature of the analysis, unknown site conditions and project specific-details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT AES-3 Potential to substantially degrade the existing visual character or quality of public views (public views are those that are experienced from publicly accessible vantage points). In an urbanized area, would the Plan conflict with applicable zoning and other regulations governing scenic quality.

Significant and Unavoidable Impacts – Mitigation Required

Implementation of the Plan has the potential to degrade the visual character of project sites, constituting a significant impact. The SCAG region is comprised of approximately 38,000 square miles, many of which are in their natural state or are primarily rural. Projects implemented under the Plan outside of the urban core would add visual elements of urban character to these areas. For example, some transportation projects are planned in rural parts of the region. Transportation projects that require new construction as well as projects that require modification would add visual elements of urban character to these rural areas. Proposed enhancements to existing transportation facilities and construction of new highways, roadways, and other transit facilities, as well as new development or densification of residential, commercial, and similar land uses would create adverse visual impacts by adding visual elements of urban character to existing rural or open spaces. This would occur where new alignments or road widening pass through primarily rural, agricultural, and/or open space areas, and the contrast would potentially result in a significant impact to visual quality (e.g., road widening, transit, or rail projects). The Plan also includes transportation projects that would intersect with the Pacific Crest National Scenic Trail in Los Angeles, San Bernardino, and Riverside Counties (i.e., mixed lane flow projects, HOT Lanes), which would affect the visual character of the scenic trail at these locations.

The Plan also includes policies and strategies such as transportation demand management strategies and emphasis on complete streets. While some of these policies and strategies would not have the potential to change the visual character of an existing community, for example, by adding bike lanes to an existing roadway, some changes, such as bus rapid transit have the potential to have adverse impacts.

The Plan also has the potential to affect the patterns of new growth in the region. The total SCAG regional population is expected to increase by approximately 2.1 million people by 2050. As described in Section 3.14, *Population and Housing*, the policies and strategies included in the Plan would focus anticipated growth in existing urbanized areas and opportunity areas like PDAs that have access to multiple modes of transportation or that trip origins and destinations are closer together, allowing for shorter trips. Nonetheless, according to SPM data, the Plan would result in the conversion of greenfield to urbanized uses, which would result in the conversion of some areas to a more urban character.

Connect SoCal 2024 focuses most new housing and job growth in PDAs, many of which have existing main streets, downtowns, and commercial corridors. This strategy supports and complements the proposed transportation network that emphasizes system preservation, active transportation, and transportation demand management measures. However, the densification of uses, even in existing urbanized areas, would result in changes to the overall visual character. Increased urbanization through taller buildings or more compact development would have a similar effect by changing the low-scale nature of a neighborhood. As described in Section 3.14, *Population and Housing*, since the adoption of Connect SoCal 2020, population, housing, and employment growth forecasts have been altered to reflect demographic shifts. Growth would continue to be encouraged within PDAs in conjunction with transportation demand management strategies.

In urbanized areas, roadways and ancillary improvements such as sound walls for projects implemented as a result of the Plan would also result in adverse visual impacts depending on the scale of improvements and location of sensitive viewers, which includes users of scenic routes, gathering places, rest areas and vista points, and residents who live near scenic resources. Highway widening and the construction of HOV/HOT and managed lanes and park-and-ride lots may result in some loss of existing freeway landscaping. Although these activities generally occur in urbanized environments, these actions could still have an adverse effect on visual quality, depending upon nearby sensitive viewers.

Significant impacts could also occur if proposed alignments or transportation facilities require large cut-and-fill slopes or noise barriers, whether in previously undeveloped areas or in already developed urban areas. Careful alignment and design, conformance with local grading ordinances, and installation of landscaping to ensure compatibility with surrounding development would be expected to reduce visual impacts to below the level of significance at the project level.

Grade separated facilities, due to elevation and scale, could have a substantial adverse visual impact on surrounding land uses during and after construction. The elevation and scale of the proposed grade separated facilities could create a significant contrast with the overall visual character of the existing landscape setting. However, the degree of the impact would be dependent on the scale of the project itself with some projects resulting in minimal if any visual impact. Transportation projects that involve the widening or upgrading of existing roadways can be designed to complement the existing system and, therefore, would involve lesser changes to the visual character of the existing landscape setting.

Transit centers and park-and-ride lots would be constructed primarily within the heavily urbanized portions of the SCAG region and consequently affect a large number of viewers. Transit centers would be expected to be dominant visual elements due to their fixed structures, including terminals, service facilities, and lighted parking lots. While these facilities would become integrated with the urban setting over time, their initial effect would result in a change in visual quality. Elevated and at-grade transit facilities such as the Gold Line Extension have the greatest potential to change the visual character of an area, while underground rail facilities such as the Purple Line Extension would have fewer impacts.

Nonetheless, the Plan has the potential to result in changes to the visual character of existing landscapes or natural areas. As such, impacts would be significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GEN-1.

PROJECT-LEVEL MITIGATION MEASURES

PMM-AES-2 In accordance with provisions of CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B), a lead agency for a project can and should consider mitigation measures to address potential aesthetic impacts that substantially degrade visual character, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:

- a) Minimize contrasts in scale and massing between the projects and surrounding natural forms and development, minimize their intrusion into important viewsheds, and use contour

grading to better match surrounding terrain in accordance with county and city hillside ordinances, where applicable.

- b) Design landscaping along highway corridors to add substantial natural elements and visual interest to soften the hard-edged, linear transportation corridors.
- c) Develop design guidelines for projects that make elements of proposed buildings/facilities visually compatible or minimize visibility of changes in visual quality or character through use of hardscape and softscape solutions. Specific measures to be addressed include setback buffers, landscaping, color, texture, signage, and lighting criteria.
- d) Design projects consistent with design guidelines of applicable general plans.
- e) Keep sites in a blight/nuisance-free condition. Remove blight or nuisances that compromise visual character or visual quality of project areas including graffiti abatement, trash removal, landscape management, maintenance of signage and billboards in good condition, and replace compromised native vegetation and landscape.
- f) Where sound walls are proposed, account for visual impacts during sound wall construction and design methods as follows:
 - Use transparent panels to preserve views where sound walls would block views from residences;
 - Use landscaped earth berm or a combination wall and berm to minimize the apparent sound wall height;
 - Construct sound walls of materials whose color and texture complements the surrounding landscape and development;
- g) Design sound walls to increase visual interest, reduce apparent height, and be visually compatible with the surrounding area; and landscape the sound walls with plants that screen the sound wall, preferably with either native vegetation or landscaping that complements the dominant landscaping of surrounding areas.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to potentially substantially degrading the existing visual character or quality of public views, due to the regional nature of the analysis, unknown site conditions and project specific-details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT AES-4 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Significant and Unavoidable Impacts – Mitigation Required

Implementation of the Plan has the potential to create new substantial sources of light or glare, constituting a significant impact. Light and glare effects often occur in urban areas. Glare is typically a daytime condition where the sun reflects off a particular building, while lighting effects often occur when new nighttime sources of lighting are introduced into an area. Both of these conditions would occur as a result of the Plan, which includes transportation projects that would introduce nighttime sources of lighting as well as anticipated development, buildings, and vehicles that would produce sources of glare. Anticipated sources of light and glare resulting from projects implemented under the Plan include nighttime construction lights, security lighting, and operation lighting such as vehicles, buildings, parking lots, and walkways. The Plan encourages compact development and development in PDAs which would generally have existing high levels of nighttime light. Similarly, many transportation projects would be located in urban areas. However, some transportation projects could occur in areas that currently have low levels of nighttime light and would have the potential to create a new source of substantial light or glare which would adversely affect day or nighttime views in jurisdictions where there are no ordinances protecting night skies. As such, impacts would be significant and mitigation is required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See **SMM-GEN-1**.

PROJECT-LEVEL MITIGATION MEASURES

- PMM-AES-3** In accordance with provisions of CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B), a lead agency for a project can and should consider mitigation measures to address potential aesthetic impacts that substantially degrade visual character, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:
- a) Use lighting fixtures that are shielded to a point below the light bulb and reflector and that prevent unnecessary glare onto adjacent properties.
 - b) Restrict the operation of outdoor lighting for construction and operation activities to the hours of 7 a.m. to 10 p.m.
 - c) Use energy-efficient, low-glare fixtures for outdoor lighting.
 - d) Use unidirectional lighting to avoid light trespass onto adjacent properties.
 - e) Design exterior lighting to confine illumination to the project site, and/or to areas which do not include light-sensitive uses.
 - f) Provide structural and/or vegetative screening from light-sensitive uses.
 - g) Shield and direct all new street and pedestrian lighting away from light-sensitive off-site uses.
 - h) Use non-reflective glass or glass treated with a non-reflective coating for all exterior windows and glass used on building surfaces.

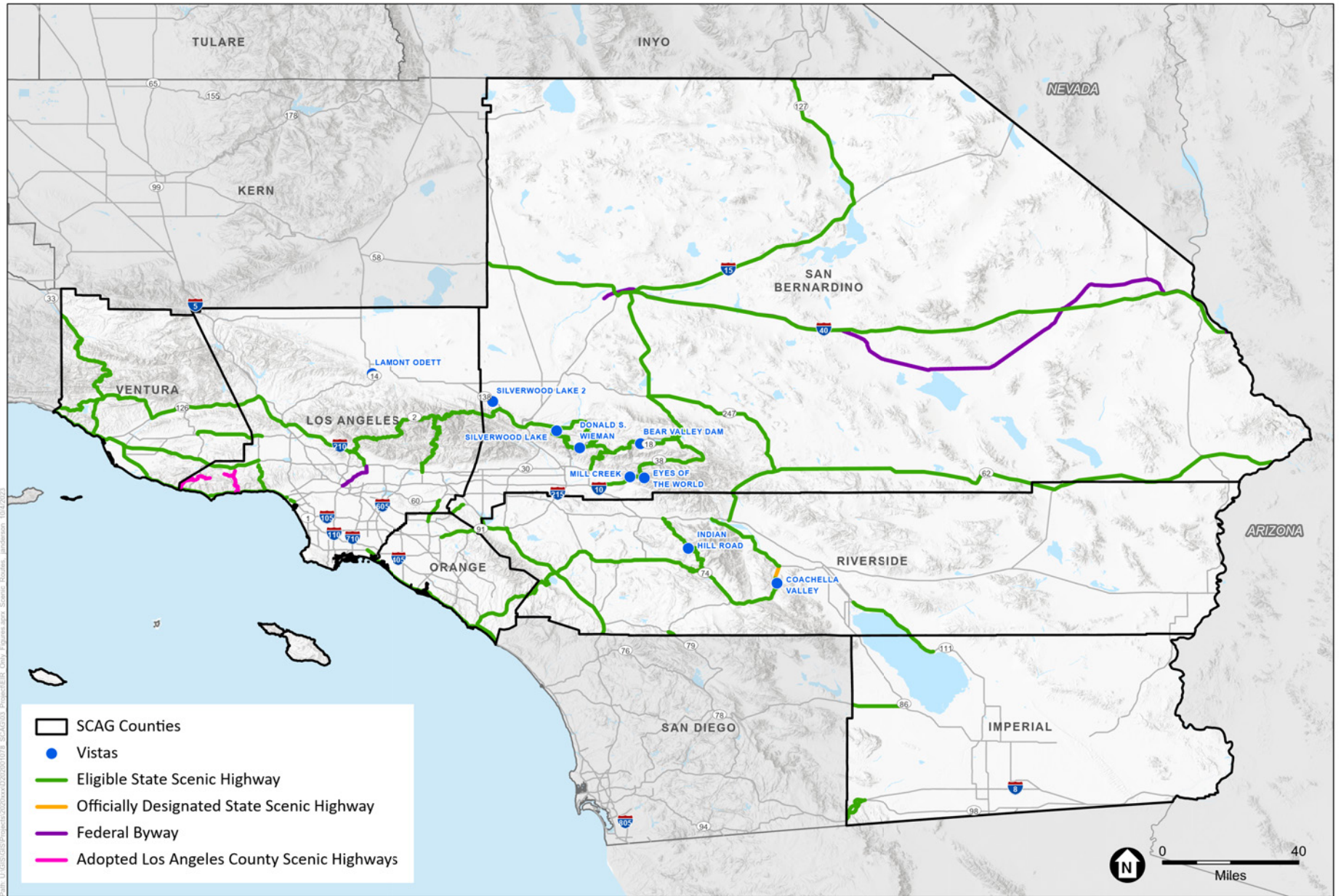
- i) Direct architectural lighting onto the building surfaces and have low reflectivity to minimize glare and limit light spillover onto adjacent properties.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to creating new sources of light and/or glare and adversely affecting day or nighttime views, due to the regional nature of the analysis, unknown site conditions and project specific-details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

3.1.4 CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to scenic resources and visual character these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.



SOURCE: Caltrans, 2023

Connect SoCal 2024 PEIR

Map 3.1-1
State Designated and Eligible Scenic Highways and Vista Points



3.1.5 SOURCES

- America's Scenic Byways. 2018. America's Scenic Byways: California. <https://scenicbyways.info/state/CA.html>. Accessed March 2, 2023.
- America's Scenic Byways. 2023a. America's Scenic Byways: Arroyo Seco Historic Parkway – Route 110. U.S. Department of Transportation, Federal Highway Administration.
- America's Scenic Byways. 2023b. America's Scenic Byways: California. Parker Dam Road. <https://scenicbyways.info/byway/68951.html>. Accessed March 19, 2023.
- America's Scenic Byways. 2023c. Route 62 – Twentynine Palms Highway. <https://scenicbyways.info/byway/2173.html>. Accessed March 2, 2023.
- America's Scenic Byways. 2023d. Ramona Expressway. <https://scenicbyways.info/byway/2181.html>. Accessed March 2, 2023.
- America's Scenic Byways. 2023e. Route 74. <https://scenicbyways.info/byway/10685.html>. Accessed March 2, 2023.
- America's Scenic Byways. 2023f. Wild Horse Canyon Scenic Backcountry Byway. <https://scenicbyways.info/byway/2175.html>. Accessed March 2, 2023.
- America's Scenic Byways. 2023g. Angeles Crest Scenic Byway (Route 2). <https://scenicbyways.info/byway/10245.html>. Accessed March 2, 2023.
- America's Scenic Byways. 2023h. Rim of the World Scenic Byway. <https://scenicbyways.info/byway/2595.html>. Accessed March 2, 2023.
- America's Scenic Byways. 2023i. Palms to Pines Scenic Byways. <https://scenicbyways.info/byway/2326.html>. Accessed March 2, 2023.
- America's Scenic Byways. 2023j. Pacific Coast Highway – California's Route 1. <https://scenicbyways.info/byway/12744.html>. Accessed March 2, 2023.
- American Geosciences Institute. 2023. California's Geomorphic Provinces. www.americangeosciences.org/sites/default/files/earthcomm-edg-ca-c1a6q2r1.doc. Accessed March 2, 2023.
- Bureau of Land Management (BLM). 2023a. Bradshaw Trail National Back Country Byway. U.S. Department of the Interior. <https://www.blm.gov/visit/bradshaw-trail>. Accessed March 2, 2023.
- BLM. 2023b. Byways. U.S. Department of the Interior. <https://www.blm.gov/programs/recreation/recreation-programs/byways>. Accessed March 2, 2023.
- California Building Standards Commission. 2023. About Us. <https://www.dgs.ca.gov/BSC/About>. Accessed March 2, 2023.
- California Department of Conservation (DOC). 2023. Farmland Mapping and Monitoring Program. <https://www.conservation.ca.gov/dlrp/fmmp/>. Accessed March 2, 2023.
- California Department of Transportation (Caltrans). 1996. Scenic Highways Program.
- Caltrans. 2008. Scenic Highway Guidelines. October. <https://dot.ca.gov/-/media/dot-media/programs/design/documents/scenic-hwy-guidelines-04-12-2012.pdf>.
- Caltrans. 2015a. Caltrans GIS Data – California Vista Points. August 2015. <https://gisdata-caltrans.opendata.arcgis.com/>. Accessed March 2, 2023.

- Caltrans. 2015b. *Structure Maintenance & Investigations: Historical Significance – State Agency Bridges*. <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/bridges-inventory-update-2015-a11y.pdf>.
- Caltrans. 2015d. *Officially Designated County Scenic Highways*. August 2019. <https://dot.ca.gov/-/media/dot-media/programs/design/documents/od-county-scenic-hwys-2015-a11y.pdf>. Accessed March 2, 2023.
- Caltrans. 2019a. *Officially Designated State Scenic Highways*. August 2019. <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. Accessed March 2, 2023.
- Caltrans. 2019b. *Structure Maintenance & Investigations: Historical Significance – Local Agency Bridges*. March 2019. <https://dot.ca.gov/-/media/dot-media/programs/maintenance/documents/f0009165-hs-local-a11y.pdf>.
- Caltrans. 2023. *Scenic Highways: California State Scenic Highways*. <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. Accessed March 2, 2023.
- City of Los Angeles. 2006. *L.A. CEQA Thresholds Guide*. Chapter A, Aesthetics and Visual Resources. 2006. <http://planning.lacity.org/Documents/MajorProjects/CEQAThresholdsGuide.pdf>.
- City of Malibu. 2018. *Dark Sky Ordinance*. <https://www.malibucity.org/705/Dark-Sky-Ordinance>. Accessed March 2, 2023.
- Code of Federal Regulations, Title 23, Chapter I, Subchapter H, Part 774: Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f)).
- County of Los Angeles. 2012. *Rural Outdoor Lighting District Ordinance*. December 13. http://planning.lacounty.gov/view/rural_outdoor_lighting_district_ordinance/. Accessed March 2, 2023.
- Federal Highway Administration (FHWA). 2015. *Guidelines for the Visual Impact Assessments of Highway Projects*. U.S. Department of Transportation. https://www.environment.fhwa.dot.gov/env_topics/other_topics/VIA_Guidelines_for_Highway_Projects.pdf.
- FHWA. 2023a. *Environmental review toolkit: Section 4(f)*. U.S. Department of Transportation. [http://environment.fhwa.dot.gov/\(S\(1vyep545s3wmhuubnvexkmm2\)\)/4f/index.asp](http://environment.fhwa.dot.gov/(S(1vyep545s3wmhuubnvexkmm2))/4f/index.asp). Accessed March 2, 2023.
- FHWA. 2023b. *America’s Byways*. U.S. Department of Transportation. <https://www.fhwa.dot.gov/byways/>. Accessed March 2, 2023.
- Federal Transit Administration (FTA). 2018. *Section 4(f) of the Department of Transportation Act*. <https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/SOP%2018.pdf>.
- Imperial County Planning & Development Services. 2008. *Circulation and Scenic Highways Element*. Approved January 29, 2008. <https://www.icpds.com/assets/planning/circulation-scenic-highway-element-2008.pdf#:~:text=The%20circulation%20element%20is%20a%20mandatory%20element%20of,providing%20a%20highway%20system%20offering%20unique%20scenic%20experiences>.
- Imperial County Planning & Development Services. 2016. *Imperial County General Plan*. Conservation and Open Space Element. March. <https://www.icpds.com/assets/planning/conservation-open-space-element-2016.pdf>.
- Los Angeles County Department of Regional Planning. 2012. *Los Angeles County Rural Outdoor Lighting District Ordinance*. <https://planning.lacounty.gov/long-range-planning/rold/>. Accessed August 22, 2023.
- Los Angeles County Department of Regional Planning. 1965. *Regional Recreation Areas Plan*. http://planning.lacounty.gov/assets/upl/project/gp_web80-regional-recreation-areas-plan.pdf.

- Los Angeles County Department of Regional Planning. 2022. *Los Angeles County General Plan*. Chapter 9, Conservation and Natural Resources Element. Section VII, Scenic Resources. July.
https://planning.lacounty.gov/wp-content/uploads/2022/11/9.0_gp_final-general-plan-ch9.pdf.
- Los Angeles County Department of Regional Planning. 2018. Santa Monica Mountains Local Coastal Program.
<https://planning.lacounty.gov/long-range-planning/santa-monica-mountains-local-coastal-program/>.
Accessed March 2, 2023.
- Mountains Recreation & Conservation Authority. 2023. Mulholland Scenic Parkway and Corridor.
<https://mrca.ca.gov/parks/park-listing/mulholland-scenic-parkway-and-corridor/>. Accessed March 2, 2023.
- NASA Earth Observatory/NOAA National Geophysics Data Center (NGDC). 2000. Earth's City Lights. Published October 23, 2000. <https://visibleearth.nasa.gov/view.php?id=55167>. Accessed March 2, 2023.
- National Park Service. 2018. National Trails System Act Legislation. August. <https://www.nps.gov/subjects/nationaltrailssystem/national-trails-system-act-legislation.htm>. Accessed March 2, 2023.
- Nationwide Environmental Title Research, LLC. 2023. Historic Aerials. <http://www.historicaerials.com/>. Accessed March 2, 2023.
- Orange County Public Works OC Development Services. 2012a. *Orange County General Plan*. Chapter IV, Transportation Element. November. <https://ocds.ocpublicworks.com/sites/ocpwoocds/files/2020-12/Chapter%20IV-%20Transportation%202020.pdf>.
- Orange County Public Works OC Development Services. 2012b. *Orange County General Plan*. Chapter VI, Resources Element. <https://ocds.ocpublicworks.com/sites/ocpwoocds/files/import/data/files/40235.pdf>.
- Riverside County. 2015. *County of Riverside General Plan*. Chapter 5: Multipurpose Open Space Element. December 8, 2015. <https://planning.rctlma.org/sites/g/files/aldnop416/files/migrated/Portals-14-genplan-general-plan-2016-elements-Ch05-MOSE-120815.pdf>.
- San Bernardino County, Land Use Services Division. 2020. *County of San Bernardino General Plan*. Natural Resources Element. Amended April 24, 2014. <https://countywideplan.com/policy-plan/natural-resources/>. Accessed March 2, 2023.
- Senate Bill No. 743: Environmental quality: transit oriented infill projects, judicial review streamlining for environmental leadership development projects, and entertainment and sports center in the City of Sacramento.
- Streets and Highway Code. Division 1, Chapter 2, Article 2.5: State Scenic Highways [260–284].
- Skykeepers. 2023. Outdoor Lighting Regulations in California. <http://www.skykeepers.org/ordsregs/califord.html>. Accessed March 2, 2023.
- Southern California Association of Governments (SCAG). 2023. 2023 Modeling SPM output. July 31, 2023.
- U.S. Code. Title 49, Subtitle I, Chapter 3, Subchapter I, Section 303: Policy on lands, wildlife and waterfowl refuges, and historic sites.
- U.S. Code. Title 23, Chapter 1, Section 138: Preservation of parklands.
- U.S. Forest Service (USFS). 2005a. *Land Management Plan, Part 1: Southern California National Forests Vision*. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5166876.pdf.
- USFS. 2005b. *Land Management Plan, Part 3: Design Criteria for Southern California National Forests*. September. http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5166878.pdf.

USFS. 2023. *National Forest Scenic Byways*. <https://web.archive.org/web/20111017215803/http://www.fs.fed.us/recreation/programs/tourism/TourUS.pdf>.

Ventura County. 2020. *Ventura County General Plan*. Chapter 6, Conservation and Open Space Element. September. https://docs.vcrma.org/images/pdf/planning/plans/Final_2040_General_Plan_docs/VCGPU_06_COS_Element_2020_09_15_web.pdf.

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3.2 AGRICULTURE AND FORESTRY RESOURCES

This section of the 2024 PEIR describes the existing conditions related to agriculture and forestry resources within the SCAG region, sets forth the regulatory framework that affects agriculture and forestry resources, and analyzes the potential impacts to agriculture and forestry resources that could result from Connect SoCal2024. In addition, this 2024 PEIR provides regional-scale mitigation measures as well as project level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible.

3.2.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for agriculture and forestry resources follow:

- *Farmland*: Sections 21060.1(a) of the California Environmental Quality Act (CEQA) (Public Resources Code Sections 21000–21177) delineates the consideration of agricultural land to include “prime farmland, farmland of statewide importance, or unique farmland, as defined by the United States Department of Agriculture (USDA) land inventory and monitoring criteria, as modified for California,” and is herein collectively referred to as “Farmland,” or “Important Farmland.” The following are categories mapped by the California Department of Conservation (DOC) (DOC 2018):
 - *Prime Farmland*: Farmland that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
 - *Farmland of Statewide Importance*: Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
 - *Unique Farmland*: Farmland of lesser quality soils used for the production of the state’s leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
 - *Farmland of Local Importance*: Land of importance to the local agricultural economy as determined by each county’s board of supervisors and a local advisory committee.

It should be noted that irrigated farmland includes most irrigated crops grown in California. When combined with soil data, these farmed areas become the Important Farmland (IFL) categories of Prime Farmland, Farmland of Statewide Importance, and Unique Farmland. Because of the nature of the IFL definitions, some irrigated uses, such as irrigated pastures or nurseries, may not be eligible for all three IFL categories.

- *Grazing Land*: Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen’s Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.

- *Urban and Built-Up Land:* Land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- *Other Land:* Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and non-agricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.
- *Forest:* Section 12220(g) of CEQA defines forest land as “land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.”
- *Timberland:* Public Resources Code Sections 4526 defines Timberland as “land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees.”
- *Timberland Production Zone:* California Government Code Section 51104(g) defines a Timberland Production Zone (TPZ) as “an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h). With respect to general plans of cities and counties, ‘timberland preserve zone’ means ‘timberland production zone.’”

EXISTING CONDITIONS

This section characterizes the baseline conditions for Important Farmland, agricultural use, Williamson Act contracts, forest land, and timberland, including Timberland Production zones.

AGRICULTURAL LANDS

California ranked first among the 50 states in 2020 in terms of net farm income at \$14.2 billion (California Department of Food and Agriculture 2021). Agricultural and related products are also one of California’s largest exports to the rest of the world. As of 2018, the SCAG region maintains over 2.6 million acres of agricultural land, which includes approximately 1.1 million acres of Farmland and approximately 1.50 million acres of grazing land/rangeland, with over 100,000 parcels of land designated as either Farmland or grazing land/rangeland (DOC 2023a). For purposes of this analysis and in accordance with SB 375, “farmland” means farmland that is outside all existing city spheres of influence or city limits as of January 1, 2008, and is one of the following:

- Classified as Prime or Unique Farmland or Farmland of Statewide Importance.
- Farmland classified by a local agency in its general plan that meets or exceeds the standards for Prime or Unique Farmland or Farmland of Statewide Importance (Senate Bill 375).

Agricultural areas in the region provide benefits like flood control, groundwater recharge, energy production, and employment opportunities. The DOC maps farmland throughout California under the Farmland Mapping and

Monitoring Program (FMMP) (DOC 2023a). The FMMP emphasizes Important Farmland, which is comprised of four subcategories: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance, as defined above.

Table 3.2-1, SCAG Region by General Land Use Category (2016–2018), breaks down the acres of agricultural lands, urban and built up land, other land, and water area by county within the SCAG region. San Bernardino County contains the most agricultural land by far, with farms and grazing lands making up over 63 percent of total inventoried area. Ventura and Imperial counties also contain substantial amounts of agricultural land, with farm and/or grazing lands comprising approximately half of the total acreage in each county. Orange County and Los Angeles County have the least amount of agricultural lands in the SCAG region, which is unsurprising as they contain the highest percent acreage of Urban and Built-up Land in the region relative to their total size.

TABLE 3.2-1 SCAG Region by General Land Use Category (2016–2018)

COUNTY	LAND USE CATEGORY (CHANGE IN ACRES FROM 2016 TO 2018)						TOTAL AREA INVENTORIED
	FARMLAND	GRAZING LAND	AGRICULTURAL LAND SUBTOTAL	URBAN AND BUILT-UP LAND	OTHER LAND	WATER AREA	
Imperial	-6,097	0	-6,097	4,351	1,596	148	-2
Los Angeles	77	21,661	21,737	605,913	83,105	3,095	713,851
Orange	-675	-811	-1,486	1,176	69	2,051	1,810
Riverside	-5,977	-346	-6,322	8,138	2,422	-4,237	0
San Bernardino	-688	-1,234	-1,922	2,027	-104	-1	0
Ventura	-236	-145	-381	-518	135	847	83
Totals	-13,596	1,482	5,528	621,087	87,224	1,902	715,742

Source: DOC 2016, 2018.

Table Note: 2018 data is the most recently available data for farmland mapping.

Agricultural lands in the SCAG region represent a declining trend, with the exception of Los Angeles County where grazing land increased from 2016 to 2018 due to the substantial increase in the total area inventoried for the survey in that jurisdiction that captured additional grazing land not previously included in the survey area. As noted above, Irrigated Farmland includes most irrigated crops grown in California. When combined with soil data, these farmed areas become the Important Farmland (IFL) categories of Prime Farmland, Farmland of Statewide Importance & Unique Farmland. Because of the nature of the IFL definitions, some irrigated uses, such as irrigated pastures or nurseries, may not be eligible for all three IFL categories. Non-irrigated land uses include grazing areas, land used for dryland crop farming, and formerly irrigated land that has been left idle for three or more update cycles. The conversion of irrigated farmland to urban land is primarily due to urbanization, which increased between 2016 and 2018 for all counties except Ventura. Urban Land includes residential, industrial, recreational, infrastructure and institutional uses. Non-irrigated and other land that was converted to urban land were primarily due to the construction of new homes, commercial and industrial buildings and groundwater recharge or water control ponds. Los Angeles County saw the greatest increase in urban and built up land, other land, and water area between 2016 and 2018.

Table 3.2-2, SCAG Region Important Farmland (2018), shows the breakdown of Important Farmland in the SCAG region. Nearly 15 percent of the area inventoried by the FMMP classifies as Important Farmland.

TABLE 3.2-2 SCAG Region Important Farmland (2016-2018)

COUNTY	FARMLAND DESIGNATION (CHANGE IN ACRES FROM 2016-2018)						
	PRIME FARMLAND	FARMLAND OF STATEWIDE IMPORTANCE	UNIQUE FARMLAND	FARMLAND OF LOCAL IMPORTANCE	IMPORTANT FARMLAND TOTAL	PERCENT OF TOTAL AREA INVENTORIED (2018)	PERCENT OF TOTAL AREA INVENTORIED (2016-2018)
Imperial	-1,042	-5,676	-165	786	-6,097	50.8	0.6
Los Angeles	-374	-66	824	-306	77	1.5	(0.0)
Orange	-110	-52	-513	0	-675	1.0	0.1
Riverside	-557	-148	-444	-4,828	-5,977	21.3	0.3
San Bernardino	-435	-202	-38	-13	-688	1.4	0.0
Ventura	-212	-66	-186	228	-236	21.3	0.0
Totals	-2,731	-6,210	-523	-4,132	-13,596	15.1	0.2

Source: DOC, 2016, 2018.

Note: Figures are generated from the GIS data. Files dating from 1990 to 2018; 2018 is the most recently available data as of March 2023.

As shown above, in Table 3.2-2, Imperial County contains the most Prime Farmland and Farmland of Statewide Importance, due to a favorable climate, productive soils, and irrigation water from the All-American Canal. The County produced approximately \$2.3 billion in agricultural crops and commodities in 2021, which is a 12 percent increase compared to 2020. Major crops grown in Imperial County include vegetables, melons, and fruit and nut crops. Although Imperial County does not contain state-designated Important Grazing Land, cattle are the County’s number one commodity, and livestock produced approximately \$464 million (20 percent) of the county’s agricultural income in 2021 (Imperial County 2021). **Map 3.2-1, Farmland in the SCAG Region**, displays the regional distribution of Important Farmlands within the SCAG region.

As shown in **Table 3.2-3, SCAG Region Important Farmland Average Annual Acreage Change (1984–2018)**, the SCAG region lost an average of 9,010 acres of Important Farmland from 1984 to 2018 (DOC 2018).

TABLE 3.2-3 SCAG Region Important Farmland Average Annual Acreage Change (1984–2018)

COUNTY	1984 IMPORTANT FARMLAND ACREAGE	2018 IMPORTANT FARMLAND ACREAGE	1984-2018 NET ACREAGE LOST	1984-2018 NET ACREAGE LOST (PERCENT)	AVERAGE ANNUAL ACREAGE LOST
Imperial	562,132	522,374	39,758	7%	1,169
Los Angeles	60,877	27,467	33,410	55%	983
Orange	26,535	5,040	21,495	81%	632
Riverside	561,542	413,858	147,684	26%	4,344
San Bernardino	69,575	19,705	49,870	72%	1,467
Ventura	132,388	118,272	14,116	11%	415
Totals	1,413,049	1,106,716	306,333	22%	9,010

Source: DOC 2018.

Los Angeles County is the most urbanized county in the SCAG region and contains only 1.5 percent of Important Farmland. Despite this, the County reaped over \$177 million from agricultural commodities in 2019 (the most

recent data available). Nursery products are the number one commodity in Los Angeles County, followed by vegetable crops and dairy and livestock (Los Angeles County 2019).

Orange County was once a rural community that relied primarily on its agricultural economy that included oranges, apricots, and walnuts. Similar to Los Angeles County, Orange County has become heavily urbanized and now contains the lowest acreage of Important Farmland of any county in the SCAG region. Despite this, Orange County produced approximately \$95 million from agricultural crops and commodities in 2021, the majority of which was generated by nursery crops, as well as tree fruit and berry crops (Orange County 2021).

Riverside County contains the most Unique Farmland and Farmland of Local Importance within the region, due to its soil quality, moisture, and growing season that sustain high value crops. In 2020, Riverside County grossed approximately \$1.4 billion from agricultural production, up seven percent from 2019. Major crops in Riverside County include grapefruit, carrots, lettuce, and onions (Riverside County 2020).

San Bernardino, despite having the most agricultural land in the SCAG region, has almost the least amount of Important Farmland, second only to Orange County. This is due to the massive amount of Grazing Land that constitutes most of the agricultural land in San Bernardino County. In 2021, the County's gross value of agricultural production totaled approximately \$351million, down 10 percent from 2020. Milk is the number one commodity and the meat from cattle and calves is the number two commodity for the County (San Bernardino County 2022).

Ventura County has some of the most productive Prime and Unique Farmlands in the nation. Over 21 percent of inventoried land in the County is designated as Important Farmland. In 2021, the County generated approximately \$2.1 billion from agricultural commodities, a five percent increase from 2020. Strawberries and lemons are the top crops in the County, followed by nursery stock, raspberries, and avocados (Ventura County 2021).

FORESTRY RESOURCES

Forest lands within the SCAG region include the Angeles National Forest (Los Angeles and San Bernardino counties), San Bernardino National Forest (San Bernardino and Riverside counties), Los Padres National Forest (Los Angeles and Ventura County), and the Cleveland National Forest (Orange County and Riverside County), as well as forest lands within the open space zones of Imperial and Los Angeles counties (**Map 3.2-2, Forest Lands in the SCAG Region**).

Within the SCAG region, forests growing at higher elevations (approximately 3,000 feet and above) are dominated by conifers. Montane conifer forests are often comprised of white fir and sugar pine, while mountain juniper and lodgepole pine thrive on open slopes and flats, respectively. Interior and Canyon live oak is also found in areas of higher elevation, as are big cone-fir trees, and Coulter, ponderosa, and Jeffrey pines. The San Bernardino Mountains maintain the highest elevation forests in the region, which are dominated by limber pine.

Forests and woodlands in lower elevations of the SCAG region are largely oak-dominated, supporting Engelmann and valley oak. Lower woodlands also consist of a mix of Coulter pine, canyon live oak, black oak, ponderosa pine, and Jeffrey pine, as well as understory grasses and herbs, most of which are non-native. Coast live oak woodland forms along coastal slopes and is often found associated with California walnut. In the vicinity of Sierra Peak in Orange County is the Tecate cypress forest, which thrives on low-fertility soils. The fire-adapted conifer species is listed by the California Native Plant Society and the forest is considered a special-status natural community by the California Natural Diversity Database (CNDDB) (CNDDB 2023).

The California Department of Fish and Wildlife recognizes valley oak woodland, Engelmann oak woodland, and California walnut woodland as sensitive woodland communities in the SCAG region. These communities as well as others have declined dramatically due to urban and agricultural development over the past 100 years. Wildfires have also negatively affected forests and woodlands, many of which can be attributed to humans. It is estimated that 3,501 human-caused fires have burned approximately 1,458,881 acres of California in 2020 (CAL FIRE 2020). Refer to Section 3.20, *Wildfire*, of this 2024 PEIR for a discussion of wildfire impacts. Fire management and protection professionals now face longer fire seasons, bigger fires, and more acres burned on average each year, and more extreme fire behavior as climate change intensifies fire conditions.

TIMBERLAND

"Timberland" means privately or publicly owned land which is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, and which can grow an average annual volume of wood fiber of at least 15 cubic feet per acre. "Timber" means trees of any species maintained for eventual harvest for forest products purposes, whether planted or of natural growth, standing or down, on privately or publicly owned land, including Christmas trees, but does not mean nursery stock. Timber is permitted in the A-2 and A-3 agricultural zones in Imperial County, the Open Space zone in Los Angeles County with a Conditional Use Permit (CUP), and the Open Space Overlay in San Bernardino County with a CUP. Riverside County permits timberland production within the R-R (rural residential) zone and W-2 (controlled development areas) zone if a CUP has been obtained. Some counties designate areas of timberland as Timberland Preserves. These areas zoned as Timberland Production Zones (TPZs) are restricted in use to the production of timber for at least 10 years. There is no TPZ land in the SCAG region (California Land Conservation Assistance Network 2013).

3.2.2 REGULATORY FRAMEWORK

FEDERAL

UNITED STATES FOREST SERVICE NATIONAL FOREST MANAGEMENT ACT OF 1976

The United States Forest Service manages approximately 2.3 million acres of national forests in the SCAG region, which is subject to the National Forest Management Act of 1976 (Public Law 94-588) (U.S. Senate Committee on Agriculture, Nutrition, and Forestry 1976), a federal law that governs the administration of national forests. There are four national forests in the SCAG region, each of which is managed in accordance with a Forest Management Plan: the Angeles National Forest (US Forest Service 2023a), San Bernardino National Forest (US Forest Service 2023b), Los Padres National Forest (US Forest Service 2023c), and Cleveland National Forest (USDA 2023d).

FARMLAND PROTECTION POLICY ACT OF 1981

Congress passed the Agriculture and Food Act of 1981 (Public Law 97-98) (United States Senate Committee on Agriculture, Nutrition, and Forestry 1981) containing the Farmland Protection Policy Act (FPPA) subtitle I of Title XV, Sections 1539–1549. Pursuant to the FPPA of 1981 Sections 1539–1549, the Secretary of Agriculture is directed to establish and carry out a program to "minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to the extent practicable, will be compatible with state, unit of local government, and private programs and policies to protect farmland" (7 USC 4201–4209 & 7 USC 658) (NRCS 2023). Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency. The purpose of the FPPA to minimize the impacts federal programs have on the unnecessary

and irreversible conversion of farmland to nonagricultural uses. It ensures that to the extent possible, federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every two years. The FPPA does not authorize the federal government to regulate the use of private or nonfederal land or, in any way, affect the property rights of owners. For the purpose of FPPA, farmland includes Prime Farmland, Unique Farmland, and Land of Statewide or Local Importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

FEDERAL FARM AND RANGLAND PROTECTION PROGRAM

The Federal Farm and Ranchland Protection Program (FRPP) is a voluntary easement purchase program that helps farmers and ranchers keep their land in agriculture (7 CFR 1491). Pursuant to Sections 1539–1549 of the FPPA of 1981 Sections, the Secretary of Agriculture is directed to establish and carry out a program to “minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to the extent practicable, will be compatible with state, unit of local government, and private programs and policies to protect farmland.” (7 USC 4201-4209 & 7 USC 658). The program provides matching funds to state, tribal, or local governments and nongovernmental organizations with existing farmland protection programs to purchase conservation easements or other interests in land.

The FRPP is re-authorized in the Farm Security and Rural Investment Act of 2002 (Farm Bill) (U.S. Congress 2002). The Natural Resources Conservation Service (NRCS) manages the program. Technical Committee, awards funds to qualified entities to conduct their farmland protection programs. Although a minimum of 30 years is required for conservation easements, priority is given to applications with perpetual easements.

FEDERAL FOREST LEGACY PROGRAM

The Forest Legacy Program (FLP) (16 USC Sections 2103c) (USDA 2017) was part of the 1990 Federal Farm Bill (U.S. Congress 1990). The purpose of the FLP is to protect environmentally important forestland under private ownership from conversion to non-forest uses, such as residential or commercial development. The FLP promotes the use of voluntary conservation easements on these properties. Landowners who wish to participate may sell or transfer particular rights, such as the right to develop the property or to allow public access, while retaining ownership of the property and the right to use it in any way consistent with the terms of the easement. The agency or organization holding the easement is responsible for managing the rights it acquires and for monitoring compliance by the landowner. Forest management activities, including timber harvesting, hunting, fishing, and hiking are encouraged, provided they are consistent with the program’s purpose.

AGRICULTURAL IMPROVEMENT ACT OF 2018

The Agricultural Improvement Act of 2018, or 2018 Farm Bill, which was signed on December 20, 2018 (and will remain in effect through 2023, although some provisions extend beyond 2023), builds upon and continues to implement many of the crucial programs that serve agricultural producers. The USDA is charged with implementing the bill, which reauthorized previous programs in the 2014 Farm Bill to serve producers now while they seek public input for future programs (USDA 2018). The 2018 Farm Bill continued funding for major programs but did include some changes to Natural Resources Conservation Programs such as expanding support to producers who address significant natural resources concerns through adoption of conservation practices and activities (USDA 2019). All major conservation programs are continued, although some have been modified.

FEDERAL ENVIRONMENTAL QUALITY INCENTIVES PROGRAM

The Environmental Quality Incentives Program (EQIP) is a voluntary program that provides financial and technical assistance through contracts up to 10 years in length to farmers and ranchers who face threats to soil, water, air, and related natural resources on their land. These contracts provide financial assistance to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. In addition, another purpose of EQIP is to help producers meet federal, state, tribal and local environmental regulations.

STATE

THE CALIFORNIA LAND CONSERVATION ACT

The California Land Conservation Act (Williamson Act) of 1965 was enacted by the California State Legislature in 1965 to encourage the preservation of agricultural lands (DOC 2019a). The DOC administers the Williamson Act, for the conservation of farmland and other resource-oriented laws. The Williamson Act program permits property tax adjustments for landowners who contract with a city or county to keep their land in agricultural production or approved open space uses for at least 10 years. Lands covered by Williamson Act contracts are assessed based on their agricultural value instead of their potential market value under nonagricultural uses. In return for the preferential tax rate, the landowner is required to contractually agree to not develop the land for a period of at least 10 years (DOC 2019b).

Williamson Act contracts are renewed annually for 10 years unless a party to the contract files for non-renewal (DOC 2019b). The filing of a non-renewal application by a landowner ends the automatic annual extension of a contract and starts a nine-year phase-out of the contract. During the phase-out period, the land remains restricted to agricultural and open space uses, but property taxes gradually return to levels associated with the market value of the land (DOC 2019c). At the end of the nine-year non-renewal process, the contract expires, and the owner's uses of the land are restricted only by applicable local zoning.

The Williamson Act defines compatible use of contracted lands as any use determined by the county or city administering the preserve to be compatible with the agricultural, recreational, or open-space use of land within the preserve and subject to contract. However, uses deemed compatible by a county or city government must be consistent with the principles of compatibility set forth in Government Code Section 51231, 51238, or 51238.1.

Within the SCAG region, Imperial, Los Angeles, Riverside, San Bernardino, and Ventura counties have land under a Williamson Act contract, although Santa Catalina Island is the only contracted area in Los Angeles County. Orange County no longer has any land under a Williamson Act contract (DOC 2017).

OPEN SPACE SUBVENTION ACT

The Open Space Subvention Act of 1972 (Government Code (Gov. Code), Sections 16140 et seq.) was enacted on January 1, 1972, to provide for the partial replacement of local property tax revenue foregone as a result of participation in the Williamson Act and other enforceable open space restriction programs. Participating local governments receive annual payment based on the quantity (number of acres), quality (soil type and agricultural productivity), and, for Farmland Security Zone contracts, location (proximity to a city) of land enrolled under eligible, enforceable open space restrictions (DOC 2023c).

THE RIGHT TO FARM ACT OF 1981

The Right to Farm Act of 1981 (California Civil Code Sections 3482.5) is designed to protect commercial agricultural operations from nuisance complaints that may arise when an agricultural operation is conducting business in a “manner consistent with proper and accepted customs.” The code specifies that established operations that have been in business for three or more years that were not nuisances at the time they began shall not be considered a nuisance as a result of new land use.

FARMLAND SECURITY ZONE ACT

The Farmland Security Zone Act (California Government Code Sections 51296–51297.4) is similar to the Williamson Act and was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy (DOC 2023d). Farmland Security Zone Act contracts are sometimes referred to as “Super Williamson Act Contracts.” Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone classification automatically renews each year for an additional 20 years. In return for a further 35 percent reduction in the taxable value of land and growing improvements (in addition to Williamson Act tax benefits), the owner of the property promises not to develop the property into non-agricultural uses. Currently, Ventura County is the only county in the SCAG region with lands designated as Farmland Security Zones.

THE CORTESE-KNOX-HERTZBERG LOCAL GOVERNMENT REORGANIZATION ACT OF 2000

The Cortese-Knox-Hertzberg Local Government Reorganization Act (Cortese-Knox-Hertzberg Act) of 2000 (Gov. Code, Sections 56000 et seq.) established procedures for local government changes of organization, including city incorporations, annexations to a city or special district, and city and special district consolidations. This act requires that development or use of land for other than open space shall be guided away from existing prime agricultural lands in open space use toward areas containing nonprime agricultural lands, unless that action would not promote that planned, orderly, efficient development of an area (California State Assembly 2018).

CALIFORNIA FARMLAND CONSERVANCY PROGRAM ACT

The California Farmland Conservancy Program Act of 2010 (Pub. Resources Code, Sections 10200 et seq.), also known as Sen. Bill No. 1142 (Statutes 2010, Chapter 323) (SB 1142), established the California Farmland Conservancy Program (CFCP), which provides grants for agricultural conservation easements. An agricultural conservation easement aims to maintain agricultural land in active production by removing the development pressures from the land. Such an easement prohibits practices that would damage or interfere with the agricultural use of the land. Because the easement is a restriction on the deed of the property, the easement remains in effect even when the land changes ownership. Agricultural conservation easements are created specifically to support agriculture and prevent development on the subject parcels. While other benefits may accrue because the land is not developed (scenic and habitat values, for example), the primary use of the land is agricultural. Easements funded by the CFCP must be of a size and nature suitable for viable commercial agriculture.

THE FOREST PRACTICE ACT

CAL FIRE enforces the laws that regulate logging on privately owned lands in California. The Forest Practice Act was enacted in 1973 to ensure that logging is done in a manner that will preserve and protect fish, wildlife, forests and streams. CAL FIRE reviews and approves plans for timber harvesting on private lands. In addition, through its

responsibility for fighting wildland fires, CAL FIRE plays a role in planning development in forested areas (CAL FIRE 2023).

CALIFORNIA DEPARTMENT OF CONSERVATION FARMLAND MAPPING AND MONITORING PROGRAM

The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands in the State of California and conversion of these lands over time (DOC 2023b). The goal of the FMMP is to provide consistent and impartial data to decision makers for use in planning for the future of California's agricultural land resources (DOC 2023b). The DOC applies NRCS soil classifications to identify agricultural lands, and these agricultural designations are used in planning for the present and future of California's agricultural land resources. The DOC has a minimum mapping unit of 10 acres, with parcels that are smaller than 10 acres being absorbed into the surrounding classifications. The following are categories mapped by the DOC: Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, Grazing Land, Urban and Built Up Land, and Other Land (DOC 2004).

CALIFORNIA FARMLAND CONSERVANCY PROGRAM

The CFCP seeks to encourage the long-term, private stewardship of agricultural lands through the voluntary use of agricultural conservation easements. The CFCP provides grant funding for projects which use and support agricultural conservation easements for protection of agricultural lands. The CFCP has funded more than 58,000 acres of easement projects in California, in more than a dozen counties between 1996 and 2016 (DOC 2016, 2023e). CFCP has also funded several planning grants, including some with regional or statewide value. CFCP did not award any new grants for planning and policy projects in the SCAG region between 1996 and 2016 (DOC 2023e).

CALIFORNIA FOREST LEGACY

Similar to the Federal Forest Legacy Program, the California Forest Legacy Act of 2007 (Pub. Resources Code, Sections 12220(G)) is a CAL FIRE program to promote conservation easements in environmentally sensitive forest areas. Money to fund the program is obtained from gifts, donations, federal grants and loans, other appropriate funding sources, and from the sale of bonds pursuant to Proposition 12, the Safe Neighborhood Parks, Clean Water, Clean Air, and Coastal Protection Bond Act (The Villaraigosa-Kelley Act) of 2000 (Public Resources Code Division 5, Chapter 1.692). This act defines "forest land" as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits".

LOCAL

GENERAL PLANS

The SCAG region spans six counties, each of which has a general plan containing policies related to protection of agriculture and typically forestry resources:

- Imperial County: Agricultural Element (Imperial County Planning and Development Services 2015) - no policies for forestry resources
- Los Angeles County: Chapter 9: Conservation and Natural Resources Element (Los Angeles County Department of Regional Planning, 2022)

- Orange County: Chapter VI. Resources Element (Orange County Public Works Development Services 2015)
- Riverside County: Chapter 5: Multipurpose Open Space Element (Riverside County Planning Department 2015)
- San Bernardino County: Natural Resources Element (County of San Bernardino Land Use Service Division, 2020)
- Ventura County: Resources Appendix (County of Ventura Resource Management Agency, Planning Division 2011)

Additional plans and ordinances at the master plan level, city-level, and specific plan level may also apply within the SCAG region.

ZONING

City and county zoning codes provide the set of detailed requirements that implement general plan policies at the level of the individual parcel. Zoning codes present standards for different uses and identifies which uses are allowed in the various zoning districts of the jurisdiction, including zones for agricultural use and timberland production. Since 1971, state law has required the city or county zoning code to be consistent with the jurisdiction's general plan. The purpose of agricultural zoning is to protect farmland and farming activities from incompatible non-farm uses.

LAND CONSERVATION TRUST

A land trust is a nonprofit organization that, as all or part of its mission, actively works to conserve land by undertaking or assisting in land or conservation easement acquisition, or by its stewardship of such land or easements. A land conservation trust is another type of organization devoted to protecting open space, agricultural lands, wildlife habitats, and natural resource lands. There are approximately 80 established trusts in California, 14 of which are located at least partially within the SCAG region (California Council of Land Trusts 2019). Local and regional land trusts, organized as charitable organizations under federal tax laws, are directly involved in conserving land for its natural, recreational, scenic, historical, and productive values. Local governments and special districts, either on their own or working with land trusts and conservancies, can acquire fee title to agricultural and open space lands or purchase development rights to preserve rural and agricultural areas, watersheds, or critical habitat, or to create public parks and recreational areas.

REGIONAL CONSERVATION PLANS

Local agencies throughout the region have worked together to form Regional Conservation Plans (RCPs). These plans recognize that important habitats do not routinely line up with jurisdictional borders, so designation of conservation lands can span multiple jurisdictions. Additionally, RCPs efficiently address mitigation mandates from CEQA by anticipating transportation projects and "banking" potentially threatened endangered-species habitats. The following are adopted major conservation plans made up of multiple jurisdictions within SCAG's boundaries; The Coachella Valley Multiple Species Habitat Conservation Plan (MSHCP), the Western Riverside MSHCP, the Orange County Transportation Authority Measure M2 Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP), and the Orange County Central Coastal NCCP/HCP. Refer to Section 3.4, *Biological Resources*, of this 2024 PEIR for further information.

The following RCPs are in the planning phase, although conservation and restoration efforts for most of them are well underway; City of Rancho Palos Verdes NCCP/HCP, Imperial Irrigation District NCCP/HCP, Town of Apple Valley MSHCP/NCCP, and the San Bernardino County Regional Conservation Investment Strategy.

LOCAL AGENCY FORMATION COMMISSIONS

The Local Agency Formation Commission (LAFCO) is the independent regulatory agency that has the responsibility to create orderly local governments and special districts boundaries, with the goal of encouraging “planned, well-ordered, efficient urban development patterns,” the preservation of open-space lands, and the discouragement of urban sprawl. While LAFCO has no direct land use authority, its actions determine which local government will be responsible for planning new areas. LAFCO addresses a wide range of boundary actions, including creation of spheres of influence for cities, adjustments to boundaries of special districts, annexations, incorporations, detachments of areas from cities, and dissolution of cities.

MITIGATION BANK OR CONSERVATION BANK

A conservation or mitigation bank is privately or publicly owned land managed for its natural resource values. In exchange for permanently protecting, managing, and monitoring the land, the bank sponsor is allowed to sell or transfer habitat credits to permittees who need to satisfy legal requirements and compensate for the environmental impacts of developmental projects.

A privately owned conservation or mitigation bank is a free-market enterprise that:

- Offers landowners economic incentives to protect natural resources;
- Saves permittees time and money by providing them with the certainty of pre-approved compensation lands;
- Consolidates small, fragmented wetland mitigation projects into large contiguous sites that have much higher wildlife habitat values;
- Provides for long-term protection and management of habitat.

A publicly owned conservation or mitigation bank offers the sponsoring public agency advance mitigation for large projects or multiple years of operations and maintenance (Bunn et al. 2013).

3.2.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

In determining whether impacts to agriculture are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the DOC as an optional model to use in assessing impacts on agriculture and farmland (DOC 2019d). In determining whether impacts to forestry resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the CAL FIRE regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to agriculture and forestry resources if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use;

- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526) (California Legislative Information 1973), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g));
- Result in the loss of forest land or conversion of forest land to non-forest use;
- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis of agriculture and forestry resources considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

The methodology for determining the significance of agriculture, timberland, and forestry impacts compares the existing conditions (2018) to conditions in 2050 with Connect SoCal 2024, as required by CEQA Guidelines Section 15126.2(a). The known agriculture, timberland, and forestry resources located within the region were evaluated using the criteria set forth by the DOC and the State CEQA Guidelines. The analysis was limited to state-recognized agriculture, timberland, and forestry resources. In general, the potential to impact agriculture, timber, and forest resources varies by the development area type (or location of transportation improvement).

Impacts are assessed in terms of changes to both land use pattern and transportation strategies using data from the six counties within the SCAG region and SCAG forecasts related to projected population, housing, and employment growth. The methodology for determining the significance of these impacts applies the significance criteria above to the future (2050) land use pattern and transportation strategies. The development of new transportation facilities may affect agriculture, timber and forestry resources, through both direct and indirect effects, including traversing agricultural, timberland, and forest lands.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan. See CEQA Guidelines Section 15126.4(a)(1)(B). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT AG-1 Potential for the Plan to convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.

Significant and Unavoidable Impact – Mitigation Required

Implementation of Connect SoCal 2024 would have the potential to convert the following to non-agricultural use: Prime Farmland, Farmland of Statewide Importance, Unique Farmland and Farmland of Local Importance. Implementation of the Plan’s policies, strategies as well as potential projects would result in the conversion of agricultural lands and constitute a significant impact (**Table 3.2-4, SCAG Region Estimated Maximum Direct Potential Loss of Important Agricultural Land, 2019 to 2050**). According to SPM data, more than 5,000 acres of combined existing Important Farmland in the SCAG region could be converted to non-agricultural use in 2050, consistent with jurisdictional feedback on locally anticipated growth and planned transportation projects (see the Connect SoCal 2024 Land Use and Communities Technical Report).

TABLE 3.2-4 SCAG Region Estimated Maximum Direct Potential Loss of Important Agricultural Land, 2019–2050

IMPORTANT FARMLAND (ACRES)				TOTAL OF IMPORTANT FARMLAND (ACRES)	PERCENT POTENTIALLY LOST IN SCAG REGION
PRIME FARMLAND	FARMLAND OF STATEWIDE IMPORTANCE	UNIQUE FARMLAND	FARMLAND OF LOCAL IMPORTANCE		
-1,309	-410	-667	-3,321	-5,707	0.64%

Source: SCAG 2023

Transportation projects and land use development could result in long-term impacts to farmland by adding transportation projects to parts of the region in use as agricultural lands or through development on agricultural lands. Agricultural lands most susceptible to impacts are interspersed throughout urban areas and adjacent to existing urban areas.

Where there would be new transportation facilities constructed outside of the region’s urbanized areas, undisturbed/vacant land could be utilized for transportation purposes. Transportation projects that are most likely to result in significant impacts to agricultural lands include highway expansion, highway widening projects, and potential connectors. Other transportation projects such as roadway improvements, toll road improvements and connections, grade-separated facilities for busways, goods movement roadway facilities, high speed rail and commuter rail projects, and regional express lane network improvements in areas that currently serve as agricultural could also result in significant impacts, requiring mitigation measures.

Connect SoCal 2024 includes regional policies, implementation strategies and investments to help protect natural and farmlands and reduce overall land consumption. Such regional policies include encouraging regional conservation planning, improving natural corridor connectivity, and expanding data sharing among agencies. Connect SoCal 2024 also promotes a safe multi-modal network and a variety of travel modes (e.g., walking, biking,

rolling, driving, taking transit), growth prioritization in Priority Development Areas (PDAs) and minimizing growth in Green Region Resource Areas (GRRAs), to encourage preservation of agricultural lands. While Connect SoCal 2024 includes the land use strategies that would focus new growth in the region's urbanized areas (primarily PDAs), it does not preclude development in GRRAs. As such, the Plan would result in the consumption of agricultural lands, constituting a significant impact requiring mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

- SMM-AG-1** SCAG shall provide support for local jurisdictions looking to pursue farmland conservation planning, including through information sharing and advice on grant opportunities pertinent to supporting local agency's workplans and/or actions in natural and agricultural land conservation, such as the Sustainable Agricultural Lands Conservation program.
- SMM-AG-2** SCAG shall continue to facilitate regional collaboration forums, such as the Natural & Farm Lands Conservation Working Group, for stakeholders to share best practices and develop recommendations for natural and agricultural land conservation throughout the region. The collaboration forums with help identify opportunities to leverage resources that protect and restore natural habitat corridors, especially, where corridors cross county boundaries.
- SMM-AG-3** SCAG shall develop and support a Regional Greenprint, which is a web-based tool that provides the best available scientific data and scenario visualizations to support local jurisdictions and transportation agencies make better land use and transportation infrastructure decisions and conserve natural and farm lands. SCAG shall provide the Greenprint as a publicly available tool to assist local jurisdictions and transportation agencies identify priority conservation areas and work with CTCs to develop advanced mitigation programs for their future plans and projects. SCAG shall support by (1) leveraging funding to encourage advance mitigation, (2) participating in state-level efforts that would support regional advanced mitigation planning in the SCAG region, and (3) supporting the inclusion of advance mitigation programs at county level transportation measures.

PROJECT-LEVEL MITIGATION MEASURES

- PMM-AG-1** In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to address potential adverse effects on agricultural resources, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:
- a) Provide permanent protection of in-kind farmland in the form of easements, fees, or elimination of development rights/potential to mitigate for loss of farmland.
 - b) Project relocation or corridor realignment to avoid Prime Farmland, Unique Farmland, or Farmland of Local or Statewide Importance.
 - c) Maintain and expand agricultural land protections such as urban growth boundaries.
 - d) Provide for mitigation fees to support a mitigation bank that invests in farmer education, agricultural infrastructure, water supply, marketing, etc. that enhance the commercial viability of retained agricultural lands.

- e) Minimize severance and fragmentation of agricultural land by constructing underpasses and overpasses at reasonable intervals to provide property access.
- f) Use berms, buffer zones, setbacks, and fencing to reduce conflicts between new development and farming uses and protect the functions of farmland.

LEVEL OF SIGNIFICANCE AFTER MITIGATION MEASURES

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to conversion of farmland, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT AG-2 **Potential for the Plan to conflict with existing zoning for agricultural use, or a Williamson Act contract.**

Significant and Unavoidable Impact – Mitigation Required

As noted above, implementation of the Plan would have the potential to convert Prime or Unique Farmland or Farmland of Statewide Importance to non-agricultural use, which could include land zoned for agricultural use and/or managed pursuant to Williamson Act contracts. While the land use strategies in the Plan are intended to encourage implementation of land use development projects in urbanized areas, some growth is expected to occur in areas that could potentially convert Prime or Farmland of Statewide Importance or Unique Farmland and conflict with existing zoning for agricultural use or Williamson Act contracts. This is particularly likely in areas where urban uses are encroaching on agricultural land, including within sphere of influence areas in more rural jurisdictions. Likewise, transportation projects implemented under the Plan, including highway extensions/widenings, and other linear projects in rural areas with a higher proportion of agricultural land, could traverse land zoned for agricultural use or enrolled in a Williamson Act contract, which could result in agricultural land conversion and associated conflicts.

Similar to IMPACT AG-1, above, while Plan policies and strategies encourage growth in urbanized areas such as PDAs and minimize growth in GRRAs, some growth could occur in areas that would potentially conflict with existing zoning for agricultural use or Williamson Act contracts which constitutes a potentially significant impact requiring mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-AG-1 through SMM-AG-3.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-AG-1.

PMM-AG-2 Project level mitigation measures can and should be considered by lead agencies as applicable and feasible. Measures to reduce substantial adverse effects on Williamson Act contracts to the maximum extent practicable, as determined appropriate by each lead agency, may include the following, or other comparable measures:

- a) Project relocation or corridor realignment to avoid lands in Williamson Act contracts.
- b) Establish conservation easements consistent with the recommendations of the Department of Conservation, or 20-year Farmland Security Zone contracts (Government Code Section 51296 et seq.), 10-year Williamson Act contracts (Government Code Section 51200 et seq.), or use of other conservation tools available from the California Department of Conservation Division of Land Resource Protection.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to conflicts with existing zoning for agricultural use, or a Williamson Act contract, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT AG-3 **Potential for the Plan to conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).**

Significant and Unavoidable Impact – Mitigation Required

Implementation of Connect SoCal 2024 has the potential to conflict with existing zoning for forest land, timberland, or timberland zoned Timberland Production. Within the SCAG region, forest industries are permitted in open space zones in Imperial County and Ventura County, while national forest lands are protected from future development. There is a potential for transportation projects included in Connect SoCal 2024 Project List to be located entirely or partly within national forests, resulting in the potential for significant impacts. In addition, potential change in land use could occur in forestlands. Therefore, impacts related to forest land are considered significant requiring mitigation measures.

The harvesting of timberland is only permitted in two agricultural zones in Imperial County, in the open space zone in Los Angeles County only if a Conditional Use Permit (CUP) has been obtained, in the rural residential zone

and controlled development areas in Riverside County only if a CUP has been obtained, in the open space zone in San Bernardino County, and only Christmas tree farms are permitted in the Timberland Preserve zone in Ventura County. Although implementation of the transportation and potential development projects could result in long-term impacts to land zoned for timberland use, timberland harvesting does not currently occur in the SCAG region. Therefore, the Plan would result in no impact to timberland. Furthermore, there would also be no impact to Timberland Production Zones, as none have been established in the six-county SCAG region. As described above, impacts to forest land would be considered significant, and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-AG-1 through SMM-AG-2.

PROJECT-LEVEL MITIGATION MEASURES

PMM-AG-3 Project level mitigation measures can and should be considered by lead agencies as applicable and feasible. Measures to reduce substantial adverse effects, through the conversion of Farmland to maximum extent practicable, as determined appropriate by each lead agency, may include the following, or other comparable measures:

- a) Minimize construction related impacts to agricultural and forestry resources by locating materials and stationary equipment in such a way as to prevent conflict with forestry resources.
- b) Acquire conservation easements for the loss of forestland or timberland.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to the rezoning for forestland, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT AG-4 **Potential for the Plan to result in the loss of forest land or conversion of forest land to non-forest use.**

Significant and Unavoidable Impact – Mitigation Required

Implementation of Connect SoCal 2024 would result in significant impacts with regards to the loss of forest land or conversion of forest land to non-forest use. Forestry resources within the SCAG region are primarily concentrated in the four national forests in the SCAG region, which are protected from future development. However, small patches of forest land and sensitive woodland communities near the wildland-urban interface are

not protected. Despite policies and strategies included in the Plan aim to encourage future development in PDAs, some of the new transportation facilities would be constructed outside of such areas. Additionally, development associated with new urban uses could also be located on forest land, resulting in the conversion of small patches of forest land to non-forest use.

Transportation projects that are most likely to result in impacts to forest lands include highway expansion, highway widening projects, and potential connectors. Other transportation projects such as roadway improvements, toll road improvements and connections, grade separated facilities for busways, goods movement roadway facilities, high speed rail and commuter rail projects, and HOV/ high-occupancy toll (HOT) connectors in areas that are currently forest land could also result in impacts. As mentioned in IMPACT AG-3 above, transportation projects in the Connect SoCal 2024 Project List have the potential to result in impacts to forestry resources remain applicable under this 2024 PEIR. As such, impacts related to forestry would be significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-AG-1 and SMM-AG-2.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-AG-3.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to loss of forest land or conversion of forest land to non-forest land, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT AG-5 **Potential for the Plan to involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use.**

Significant and Unavoidable Impact – Mitigation Required

Implementation of Connect SoCal 2024 would result in significant impacts with regards to the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

Although the Plan would include policies and strategies that encourage new anticipated development in the region's PDAs, some new development is anticipated to occur in agricultural areas on forest land outside the national forests (where forest land is protected from future development), and/or near the wildland-urban interface. As described under Impact AG-1, implementation of the Plan would convert existing Important Farmland in the SCAG region to urban uses to accommodate future growth. Furthermore, Farmland that remain agricultural but located adjacent to urban uses, may feel pressure to develop, as nearby land values increase or as nuisances from urban development spread to agricultural lands. In addition, urban uses, especially newly urbanized areas, can lead to pressure on adjacent farms to change their farming practices (to reduce noise, decrease spraying of fertilizers and pesticides, etc.). Implementation of the Plan could also indirectly result in the conversion of additional farmland or forest land as a result of increased development due to transit and/or passenger rail projects included in the Plan.

Another factor contributing to loss of agricultural productivity and conversion of farmlands is loss of topsoil. Loss of topsoil associated with erosion from wind and stormwater, though not necessarily directly caused by urbanization (and the related soil disturbance and changes in drainage patterns), can be exacerbated and accelerated by construction and operation of urban uses. As such, erosion of topsoil from transportation and potential develop projects would occur throughout the region, particularly in areas with high-quality topsoil and/or designated farmland areas, could result in increased loss of topsoil and an incremental decrease in agricultural productivity. As discussed in greater detail in Section 3.7, *Geology and Soils*, and Section 3.10, *Hydrology and Water Quality*, of this 2024 PEIR, construction and operation of transportation and potential land use projects would, for the most part, not result in significant impacts related to water quality, including impacts related to erosion and sedimentation, given compliance with existing regulations. However, given the number of uncertainties regarding enforcement of these regulations due to large geographic and geologically diverse nature of the SCAG region, it is conservatively assumed that substantial erosion and sedimentation, including loss of topsoil, could occur in areas containing farmlands or soils suitable for agricultural production. As such, anticipated growth in the region under the Plan would incrementally increase the potential for loss of topsoil associated with construction and operational activities, and impacts would be considered significant as implementation of the Plan could result in substantial losses of topsoil and adverse effects on farmlands. Also refer to Section 3.3, *Air Quality*, of this 2024 PEIR for a discussion of air quality impacts associated with dust generation resulting from Plan implementation.

Forestry resources are concentrated in the four national forests in the SCAG region, which are protected from future development. However, as discussed in Connect SoCal 2024, climate change associated with greenhouse gas emissions would be expected to contribute to the loss of agricultural and forest land caused by increased drought conditions and wildfires (SCAG 2019) Refer to Section 3.20, *Wildfire*, of this 2024 PEIR for further information. As climate change studies suggest that Southern California will continue to experience more extreme weather scenarios, including longer and hotter heat waves that would increase the threat of wildfire in parts of the SCAG region already prone to wildfires, forested areas in the region are expected to experience greater threats from wildfires as conditions grow drier and hotter (Intergovernmental Panel on Climate Change 2018). Agricultural areas in Southern California are "moderately" vulnerable to climate change (i.e., loss of winter chill hours, increased heat waves and drought periods, changes in precipitation patterns, and increased fire hazards have the potential to result in the loss of agricultural land) (USDA 2023). As described in Section 3.8, *Greenhouse Gas Emissions*, Connect SoCal 2024 could result in a potentially significant impact with respect to greenhouse gas emissions (GHGs) and GHGs are considered a primary cause of global climate change. As discussed in Section 3.8, while implementation of the Plan would facilitate the region meeting the SB 375 GHG reduction targets, reduction of GHGs would be insufficient for the transportation sector to meet the state's overall GHG reduction goals. As such,

overall, the 2024 PEIR concludes that impacts related to GHG emissions and conflicts with GHG reduction plans, policies, and regulations would be potentially significant. Nonetheless, the relationship between development in any given region or country and measurable changes in forest land is not possible to determine and is therefore considered too speculative to be analyzed any further in this environmental document.

As previously mentioned, implementation of the Plan would convert agricultural land to urban uses as the region grows to accommodate 1.6 million additional households. A range of local conservation plans, habitat conservation agencies and state/federal park designated areas provide protection for a significant amount of natural and farmland in the SCAG region. However, a substantial amount of land on the urban and suburban fringe is vulnerable to development if not within the boundaries of protected lands and face additional development pressure as adjacent lands are converted. Therefore, Connect SoCal 2024 could have the potential to cause other changes in the existing environment that could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use, constituting a potentially significant impact requiring the consideration of mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-AG-1, SMM-AG-2, SMM-GHG-1, and SMM-GHG-2.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-AG-2 and PMM-GHG-2.

PMM-AG-4 Project level mitigation measures can and should be considered by lead agencies as applicable and feasible. Measures to reduce substantial adverse effects, through the conversion of Farmland, to the maximum extent practicable, as determined appropriate by each lead agency, may include the following, or other comparable measures:

- a) Design proposed projects to minimize, to the greatest extent feasible, the loss of the highest valued agricultural land.
- b) Redesign project features to minimize fragmenting or isolating Farmland. Where a project involves acquiring land or easements, ensure that the remaining non-project area is of a size sufficient to allow economically viable farming operations. The project proponents shall be responsible for acquiring easements, making lot line adjustments, and merging affected land parcels into units suitable for continued commercial agricultural management.
- c) Reconnect utilities or infrastructure that serve agricultural uses if these are disturbed by project construction. If a project temporarily or permanently cuts off roadway access or removes utility lines, irrigation features, or other infrastructure, the project proponents shall be responsible for restoring access as necessary to ensure that economically viable farming operations are not interrupted.

PMM-AG-5 Project level mitigation measures can and should be considered by lead agencies as applicable and feasible. Measures to reduce substantial adverse effects, through the conversion of Farmland,

to the maximum extent practicable, as determined appropriate by each lead agency, may include the following, or other comparable measures:

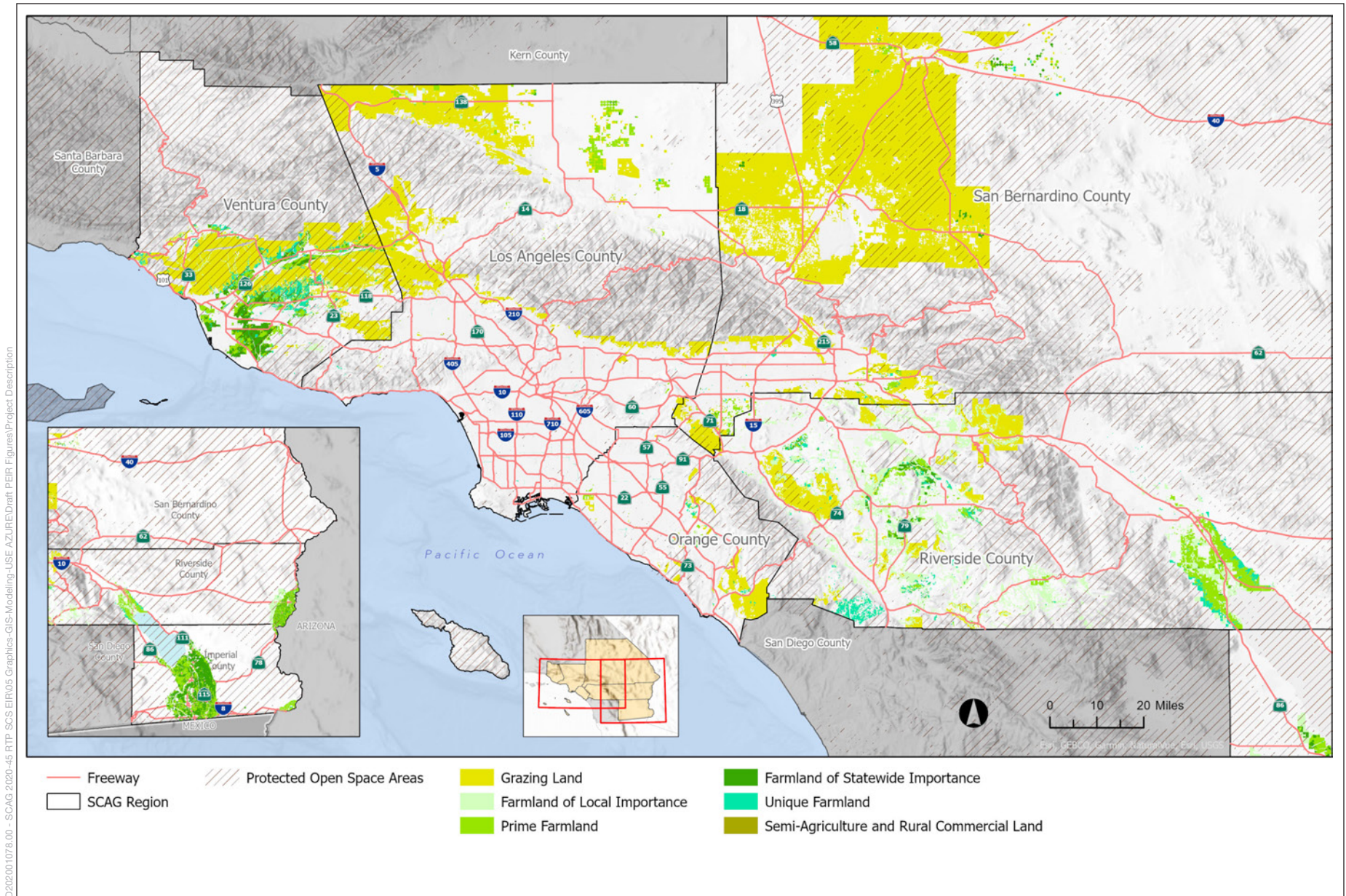
- a) Manage project operations to minimize the introduction of invasive species or weeds that may affect agricultural production on adjacent agricultural land. Where a project has the potential to introduce sensitive species or habitats or have other spill-over effects on nearby agricultural lands, the project proponents shall be responsible for acquiring easements on nearby agricultural land and/or financially compensating for indirect effects on nearby agricultural land. Easements (e.g., flowage easements) shall be required for temporary or intermittent interruption in farming activities (e.g., because of seasonal flooding or groundwater seepage). Acquisition or compensation would be required for permanent or significant loss of economically viable operations.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to conversion of farmland or forestland, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to agricultural and forestry resources, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.



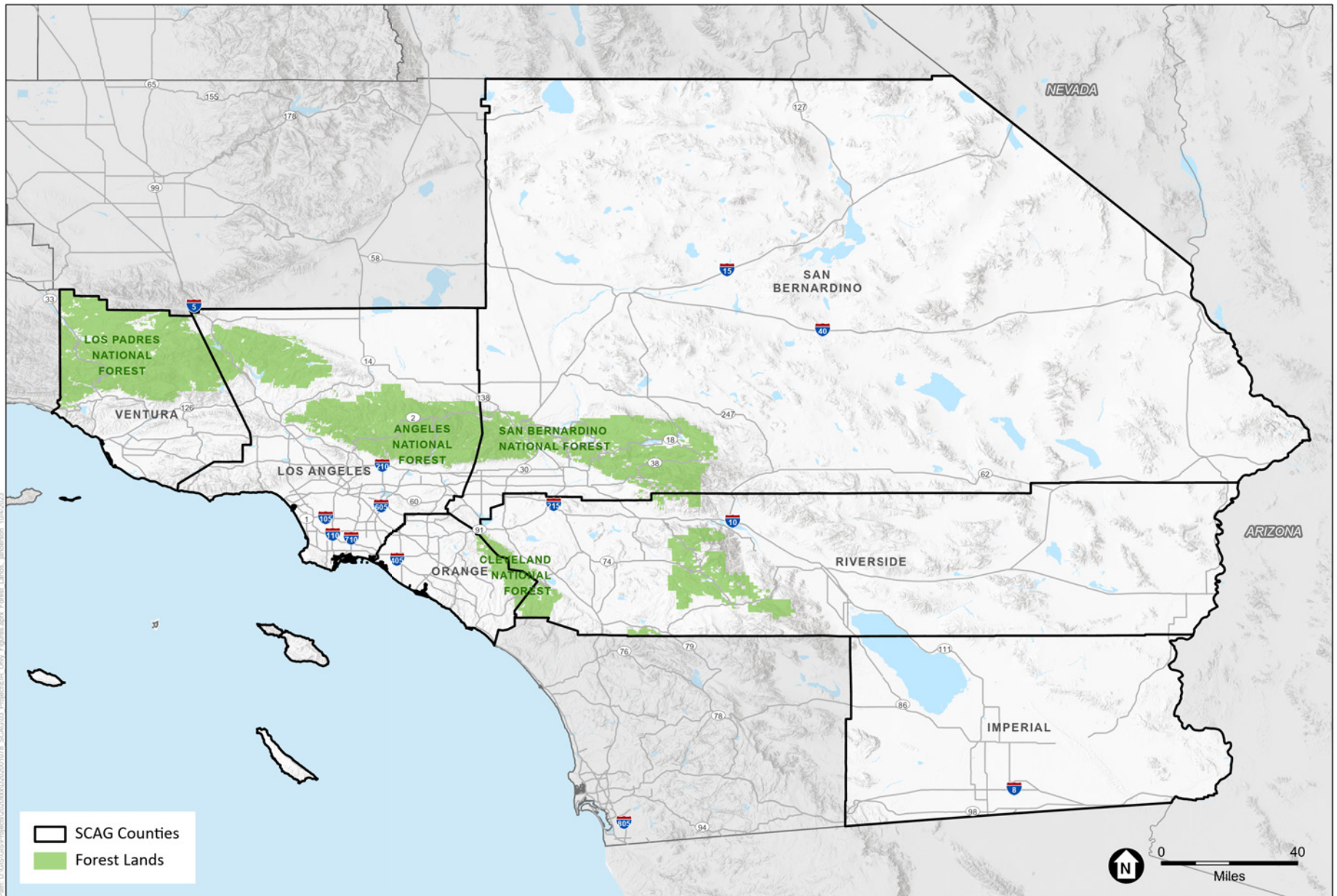
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SOURCE: SCAG, 2022

Connect SoCal 2024 PEIR

Map 3.2-1
Farmland in SCAG Region





SOURCE: ESRI, 2022

Connect SoCal 2024 PEIR



Map 3.2-2
Forest Lands in the SCAG Region

3.2.4 SOURCES

- Bunn, D., M. Lubell, C. Johnson. 2013. Reforms could boost conservation banking by landowners. <http://calag.ucanr.edu/Archive/?article=ca.v067n02p86>. Accessed October 20, 2022.
- California Civil Code. Division 4, Part 3, Title 1, Section 3482.5: Agricultural activity not a nuisance; exceptions; construction with other laws.
- California Council of Land Trusts. 2019. Map of CA Land Trusts. <https://www.calandtrusts.org/map-ca-land-trusts/>. Accessed October 20, 2022.
- California Department of Conservation (DOC). 2004. *A Guide to the Farmland Mapping and Monitoring Program*. https://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp/Archive/fmmp_guide_2004.pdf.
- DOC. 2016. *California Farmland Conservancy Program Easements Completed 1996–2016*. November 2016. http://www.conservation.ca.gov/dlrp/grant-programs/Documents/stories/CFCP_CompletedEasementsMap_1996_2016.pdf.
- DOC. 2017. Williamson Act Contract Land by County. <ftp://ftp.consrv.ca.gov/pub/dlrp/WA/>. Accessed March 3, 2023.
- DOC. 2018. Farmland Mapping and Monitoring Program: County Data. Historic land use data for all six counties in the SCAG region. 1984-present (2018). https://www.conservation.ca.gov/dlrp/fmmp/Pages/county_info.aspx. Accessed March 2, 2023.
- DOC. 2019a. Williamson Act Program Overview. https://www.conservation.ca.gov/dlrp/wa/Pages/wa_overview.aspx. Accessed March 3, 2023.
- DOC. 2019b. Williamson Act Contracts. <https://www.conservation.ca.gov/dlrp/wa/Pages/contracts.aspx>. Accessed March 2, 2023.
- DOC. 2019c. Williamson Act Contract Removal. https://www.conservation.ca.gov/dlrp/wa/Pages/removing_contracts.aspx. Accessed March 3, 2023.
- DOC. 2019d. 2014–2016 Farmland Conversion Report. https://www.conservation.ca.gov/dlrp/fmmp/Pages/2014-2016_Farmland_Conversion_Report.aspx. Accessed May 4, 2023.
- DOC. 2019d. Land Evaluation & Site Assessment (LESA) Model. https://www.conservation.ca.gov/dlrp/Pages/qh_lesa.aspx. Accessed March 3, 2023.
- DOC. 2023a. Farmland Mapping and Monitoring Program. <https://www.conservation.ca.gov/dlrp/fmmp/>. Accessed March 2, 2023.
- DOC. 2023b. Farmland Mapping and Monitoring Program – Program Overview. http://www.conservation.ca.gov/dlrp/fmmp/Pages/Program_Overview.aspx. Accessed March 3, 2023.
- DOC. 2023c. Open Space Subvention Act. <https://www.conservation.ca.gov/dlrp/wa/Pages/Open-Space-Subvention.aspx>. Accessed March 3, 2023.
- DOC. 2023d. Farmland Security Zones. <http://www.conservation.ca.gov/dlrp/wa/Pages/Farmland-Security-Zones.aspx>. Accessed March 3, 2023.
- DOC. 2023e. Project Profiles – CFCP Projects. <http://www.conservation.ca.gov/dlrp/Pages/Project%20Profiles.aspx>. Accessed March 3, 2023.
- California Department of Fish and Wildlife (CDFW). 2023. Conservation and Mitigation Banking. <https://www.wildlife.ca.gov/Conservation/Planning/Banking>. Accessed March 3, 2023.

- California Department of Food and Agriculture. 2021. California Agricultural Statistics Review 2020–2021. September. <https://www.fb.org/market-intel/reviewing-state-level-2017-net-farm-income>. Accessed March 2, 2023.
- California Department of Forestry and Fire Protection (CAL FIRE). 2020. 2020 Wildfire Activity Statistics. https://34c031f8-c9fd-4018-8c5a-4159cdff6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/2020_redbook_final.pdf?rev=72030b4d2cb7466aa573754ecb4f656e&hash=337DB407876BE384081C7D722D82B1BF.
- CAL FIRE. 2023. About Us. <https://www.fire.ca.gov/about-us/>. Accessed March 3, 2023.
- California Land Conservation Assistance Network. 2013. Timberland Production Zones. <https://www.californialandcan.org/#regionMap>. Accessed March 3, 2023.
- California Natural Diversity Database. 2023. Special Vascular Plants, Bryophytes, and Lichens List. January. <https://wildlife.ca.gov/Data/CNDDDB/Plants-and-Animalsl>. Accessed March 24, 2023.
- California Public Resources Code. Division 110.5, Chapter 1, Article 3. Definition [12220–12220].
- California Public Resources Code. Division 4, Part 2, Chapter 8, Article 2, Definitions [4521–4529.5].
- California State Assembly. 2018. *Guide to the Cortese-Knox Hertzberg Local Government Reorganization Act*. <https://calafco.org/sites/default/files/resources/CKH%20Guide%20Update%202018.pdf>.
- Code of Federal Regulations. Title 7, Subtitle B, Chapter XIV, Subchapter C, Part 1491: Farm and Ranch Lands Protection Program.
- County of San Bernardino Land Use Service Division. 2020. *County of San Bernardino 2020 General Plan*. Natural Resources Element. <https://countywideplan.com/policy-plan/natural-resources/>. Accessed March 3, 2023.
- County of Ventura Resource Management Agency, Planning Division. 2011. *Ventura County General Plan*. Resources appendix. Amended June 28, 2011. <https://docs.vcrma.org/images/pdf/planning/plans/General-Plan-Resources-Appendix.pdf>.
- Government Code. Title 5, Division 1, Part 1, Chapter 6.7, Article 1, General Provisions [51100–51104].
- Government Code. Title 5, Division 1, Part 1, Chapter 7, Article 1, General Provisions [51200–51207].
- Imperial County. 2021. *2021 Imperial County Agricultural Crop and Livestock Report*. <https://agcom.imperialcounty.org/wp-content/uploads/2022/10/2021-CR-Draft-Final.pdf>.
- Imperial County Planning and Development Services. 2015. *Imperial County General Plan*. Agricultural Element. October 6, 2015. <https://www.icpds.com/planning/land-use-documents/general-plan/agricultural-element>. Accessed March 3, 2023.
- Intergovernmental Panel on Climate Change (IPCC). 2018. *Global Warming of 1.5° Celsius Climate Change Summary Report for Policymakers*. https://www.ipcc.ch/site/assets/uploads/sites/2/2018/07/SR15_SPM_version_stand_alone_LR.pdf.
- Los Angeles County. 2019. *2019 Los Angeles County Crop and Livestock Report*. https://file.lacounty.gov/SDSInter/acwm/1079785_2019CropReport-Web.pdf.
- Los Angeles County Department of Regional Planning. 2022. *Los Angeles County General Plan 2035*. July 14, 2022. <https://planning.lacounty.gov/long-range-planning/general-plan/general-plan/>. Accessed March 3, 2023.

- Orange County. 2021. *Orange County 2021 Annual Crop Report*.
<https://ocgov.app.box.com/s/5z1i9ibeg0931hrvpl7v0tne6109nphp>. Accessed March 2, 2023.
- Orange County Public Works Development Services. 2015. *Orange County General Plan*. Chapter VI, Resources Element. <https://ocds.ocpublicworks.com/sites/ocpwoocds/files/import/data/files/40235.pdf>.
- Riverside County. 2020. *Agricultural Production Report 2020*.
<https://rivcoawm.org/sites/g/files/aldnop221/files/migrated/Portals-0-PDF-2020-Crop-Report.pdf>.
- Riverside County Planning Department. 2015. *Riverside General Plan*. Multipurpose Open Space Element. December 8, 2015.
https://planning.rctlma.org/Portals/14/genplan/general_plan_2016/elements/Ch05_MOSE_120815.pdf?ver=2016-04-01-100801-367. Accessed March 3, 2023.
- San Bernardino County. 2022. *Annual Crop Report 2021*. <https://awm.sbcounty.gov/wp-content/uploads/sites/84/2022/10/N4454-AWM-CROP-REPORT-2021-Web.pdf>.
- Senate Bill No. 375. Transportation planning: travel demand models: sustainable communities strategy: environmental review.
- Senate Bill No. 1142. Agricultural resources: grants.
- Southern California Association of Governments (SCAG). 2019. *Connect SoCal (2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Natural & Farm Lands Conservation Technical Report*.
- SCAG. 2023. *Connect SoCal 2024 SPM Summary Outputs Technical Report*.
- U.S. Congress. 1990. *Food, Agriculture, Conservation, and Trade Act of 1990*. <https://www.congress.gov/bill/101st-congress/senate-bill/2830>. Accessed March 3, 2023.
- U.S. Congress. 2002. *Farm Security and Rural Investment Act of 2002*.
<https://www.congress.gov/107/plaws/publ171/PLAW-107publ171.pdf>. Accessed March 3, 2023.
- U.S. Department of Agriculture (USDA). 2017. *Forest Legacy Program Implementation Guidelines*.
https://www.dnr.wa.gov/publications/amp_fl_guidelines_.pdf#:~:text=Forest%20Legacy%20Program%20Implementation%20Guidelines%20First%2C%20a%20review,more%20details%20on%20this%20process.%29%20Amicable%20Agreement%20Acknowledgment. Accessed March 3, 2023.
- USDA. 2018. 2018 Farm Bill. <https://www.farmers.gov/farmbill>. Accessed March 3, 2023.
- USDA. 2019. *What's New: Natural Resources Conservation Service (NRCS) and the 2018 Farm Bill*.
https://www.farmers.gov/sites/default/files/documents/NRCS-FarmBill2018_WhatsNew-19.pdf.
- USDA. 2023. California Crops Under Climate Change.
<https://www.climatehubs.usda.gov/hubs/california/california-crops-under-climate-change>. Accessed March 6, 2023.
- US Forest Service. 2023a. Angeles National Forest: Planning.
<http://www.fs.usda.gov/main/angeles/landmanagement/planning>. Accessed March 3, 2023.
- US Forest Service. 2023b. San Bernardino National Forest: Planning.
<http://www.fs.usda.gov/main/sbnf/landmanagement/planning>. Accessed March 3, 2023.
- US Forest Service. 2023c. Los Padres National Forest: Planning.
<http://www.fs.usda.gov/main/lpnf/landmanagement/planning>. Accessed March 3, 2023.

- US Forest Service. 2023d. Cleveland National Forest: Planning. <http://www.fs.usda.gov/main/cleveland/landmanagement/planning>. Accessed March 3, 2023.
- Natural Resources Conservation Service (NRCS). 2023. Farmland Protection Policy Act (FPPA). <https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/land/cropland/farmland-protection-policy-act>. Accessed October 23, 2023.
- U.S. Senate Committee on Agriculture, Nutrition, and Forestry. 1976. *National Forest Management Act of 1976*. <https://www.agriculture.senate.gov/imo/media/doc/National%20Forest%20Management%20Act%20Of%201976.pdf>. Accessed March 3, 2023.
- United States Senate Committee on Agriculture, Nutrition, and Forestry. 1981. *Agriculture and Food Act of 1981*. <https://www.agriculture.senate.gov/imo/media/doc/97-98%20-%20Agriculture%20And%20Food%20Act%20Of%201981.pdf>. Accessed March 3, 2023.
- Vartabedian, R. 2018. California bullet train picks its path between Burbank and Palmdale. <https://www.latimes.com/local/california/la-me-high-speed-rail-palmdale-burbank-20180919-story.html>. Accessed March 3, 2023.
- Ventura County. 2021. *2021 Crop and Livestock Report*. https://cdn.ventura.org/wp-content/uploads/2022/07/2021-CR_1.pdf. Accessed March 3, 2023.

3.3 AIR QUALITY

This section of the 2024 PEIR describes air quality within the SCAG region, sets forth the regulatory framework that affects air quality, and analyzes the potential impacts of Connect SoCal 2024. In addition, this PEIR provides regional-scale mitigation measures as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible. Wind-related erosion as relates to loss of topsoil is addressed in Section 3.2, *Agriculture and Forestry Resources*, of this 2024 PEIR. Additional discussion of ozone as relates to global warming is provided in Section 3.8, *Greenhouse Gas Emissions*, as well as discussion of wildfire impacts in Section 3.20, *Wildfire*.

DEFINITIONS

- *Air Dispersion.* Air dispersion is defined as how air pollutants travel through ambient air. Toxic air contaminants/mobile source air toxics (TAC/MSAT) impact those located closest to the emission sources more than those located further away. A California law passed in 2003 (Public Resources Code Section 21151.8) prohibits the siting of a school within 500 feet of a freeway unless “the school district determines, through analysis based on appropriate air dispersion modeling, that the air quality at the proposed site is such that neither short-term nor long-term exposure poses significant health risks to pupils.” The U.S. Environmental Protection Agency (USEPA) has issued a number of regulations that will dramatically decrease MSATs through cleaner fuels and cleaner engines.
- *Concentrations.* The amount of pollutant material per volumetric unit of air, measured in parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The following discussion identifies the pollutants included in this analysis.
- *Criteria Pollutants.* Criteria air pollutants are defined as pollutants for which the federal and State governments have established ambient air quality standards for outdoor concentrations. The federal and State standards have been set at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter 2.5 microns or less in diameter (PM_{2.5}), particulate matter ten microns or less in diameter (PM₁₀), and lead (Pb). These pollutants are discussed below (USEPA 2023i):
 - *Carbon monoxide (CO)* is a colorless and odorless gas formed by the incomplete combustion of fossil fuels. It is emitted primarily from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, automobile exhaust accounts for the majority of emissions. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient concentrations generally follow the spatial and temporal distributions of vehicular traffic. Concentrations are influenced by local meteorological conditions; primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February. Inversions are an atmospheric condition in which a layer of warm air traps cooler air near the surface of the earth, preventing the normal rising of surface air. The highest concentrations occur during the colder months of the year when inversion conditions are more frequent. CO is a health concern because it competes with oxygen, often replacing it in the blood and reducing the blood’s ability to transport oxygen to vital organs. Excess CO exposure can lead to dizziness, fatigue, and impair central nervous system functions (USEPA 2023b).

- *Ozone (O₃)* is a colorless gas that is formed in the atmosphere when reactive organic gases (ROG) and nitrogen oxides (NO_x) react in the presence of ultraviolet sunlight. Ozone is not a primary pollutant; rather, it is a secondary pollutant formed by complex interactions of two pollutants directly emitted into the atmosphere. The primary sources of ROG and NO_x, the components of ozone, are automobile exhaust and industrial sources. Meteorology and terrain play major roles in ozone formation. Ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. The greatest source of smog-producing gases is the automobile. Short-term exposure (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (USEPA 2023f).
- *Nitrogen dioxide (NO₂)* like ozone, is not directly emitted into the atmosphere but is formed by an atmospheric chemical reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO₂ are collectively referred to as NO_x and are major contributors to ozone formation. NO₂ also contributes to the formation of PM₁₀. High concentrations of NO₂ can cause breathing difficulties and result in a brownish-red cast to the atmosphere with reduced visibility. There is some indication of a relationship between NO₂ and chronic pulmonary fibrosis. Some increase of bronchitis in children (2-3 years old) has been observed at concentrations below 0.3 ppm (USEPA 2023d).
- *Sulfur dioxide (SO₂)* is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Main sources of SO₂ are coal and oil used in power plants and industries. Generally, the highest levels of SO₂ are found near large industrial complexes. In recent years, SO₂ concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO₂ and limits on the sulfur content of fuels. SO₂ is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO₂ can also yellow plant leaves and erode iron and steel (USEPA 2023i).
- *Particulate matter (PM)* consists of small liquid and solid particles floating in the air, including smoke, soot, dust, salts, acids, and metals and can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. Fine particulate matter, or PM_{2.5}, is roughly 1/28 the diameter of a human hair and results from fuel combustion (e.g., motor vehicles, power generation, industrial facilities), residential fireplaces, and wood stoves. In addition, PM_{2.5} can be formed in the atmosphere from gases such as SO₂, NO_x, and VOC. Inhalable particulate matter, or PM₁₀, is about 1/7 the thickness of a human hair. Major sources of PM₁₀ include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

PM_{2.5} and PM₁₀ pose a greater health risk than larger-size particles. When inhaled, they can penetrate the human respiratory system's natural defenses and damage the respiratory tract. PM_{2.5} and PM₁₀ can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates, and nitrates can cause lung damage directly. These substances can be absorbed into the blood stream and cause damage elsewhere in the body. These substances can transport absorbed gases, such as chlorides or ammonium, into the lungs and cause injury. Whereas PM₁₀ tends to collect in the upper portion of the respiratory system, PM_{2.5} is so tiny that it can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility (USEPA 2023j).

- *Lead (Pb)* in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturers of batteries, paint, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phase-out of leaded gasoline reduced the overall inventory of airborne lead by nearly 95 percent. With the phase-out of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities have become lead-emission sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth (USEPA 2023c).

- *Toxic air contaminants (TAC)* are airborne pollutants that may increase a person's risk of developing cancer or other serious health effects. TACs include more than 700 chemical compounds that are identified by State and federal agencies based on a review of available scientific evidence. In California, TACs are identified through a two-step process established in 1983 that includes risk identification and risk management (OEHHA 2023a).
- *Diesel Particulate Matter (DPM)*. According to the California Air Resources Board (CARB), most toxic air emissions are from motor vehicles and the particulate matter from the exhaust of diesel-fueled engines (CARB 2023e). In 1998, the California Office of Environmental Health Hazard Assessment (OEHHA) completed a comprehensive health assessment of diesel exhaust. This assessment formed the basis for a decision by CARB to formally identify particles in diesel exhaust as a TAC that may pose a threat to human health (OEHHA 2023b).

DPM is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is commonly found throughout the environment and is estimated by USEPA's National Scale Assessment to contribute to the human health risk in New England. Diesel exhaust is composed of two phases, either gas or particle, and both phases contribute to the risk. The gas phase is composed of many of the urban hazardous air pollutants, such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, and polycyclic aromatic hydrocarbons. The particle phase also has many different types of particles that can be classified by size or composition. The size of diesel particulates that are of greatest health concern are those that are in the categories of fine, and ultra-fine particles. The composition of these fine and ultrafine particles may be composed of elemental carbon with absorbed compounds such as organic compounds, sulfate, nitrate, metals, and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines: the on-road diesel engines of trucks, buses, and cars and the off-road diesel engines that include locomotives, marine vessels, and heavy-duty equipment (USEPA 2014a). People living and working in urban and industrial areas are more likely to be exposed to this pollutant. Those spending time on or near roads and freeways, truck loading and unloading operations, operating diesel-powered machinery, or working near diesel equipment face exposure to higher levels of diesel exhaust and face higher health risks (OEHHA 2023b).

The most common exposure pathway is breathing the air that contains the DPM. The fine and ultrafine particles are respirable, which means that they can avoid many of the human respiratory system defense mechanisms and enter deeply into the lung. In the National Scale Assessment, there are several steps used to characterize public health risks. For diesel particulate matter, not all of the steps could be completed but a qualitative assessment was provided that provided modeling estimates of population exposures. The estimated population exposure concentrations for diesel particulate matter were the highest exposure concentrations in all of the New England states. USEPA has medium confidence in the

overall NATA estimate for diesel particulate exposure based on the emissions and exposure modeling. Exposure to DPM comes from both on road and off-road engine exhaust that is either directly emitted from the engines or aged through lingering in the atmosphere (USEPA 2014a).

Diesel exhaust causes health effects from both short-term or acute exposures and also long-term chronic exposures, such as repeated occupational exposures. The type and severity of health effects depends upon several factors including the amount of chemical you are exposed to and the length of time you are exposed. Individuals also react differently to different levels of exposure. There is limited information on exposure to just diesel particulate matter but there is enough evidence to indicate that inhalation exposure to diesel exhaust causes acute and chronic health effects (USEPA 2014a).

Acute exposure to diesel exhaust may cause irritation to the eyes, nose, throat, and lungs and some neurological effects such as lightheadedness. Acute exposure may also elicit a cough or nausea as well as exacerbate asthma. Chronic exposure in experimental animal inhalation studies have shown a range of dose-dependent lung inflammation and cellular changes in the lung, and there are also diesel exhaust immunological effects. Based upon human and laboratory studies, there is considerable evidence that diesel exhaust is a likely carcinogen. Human epidemiological studies demonstrate an association between diesel exhaust exposure and increased lung cancer rates in occupational settings (USEPA 2014a). The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. Numerous studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks and premature deaths among those suffering from respiratory problems. Because children's lungs and respiratory systems are still developing, they are also more susceptible than healthy adults to fine particles. Exposure to fine particles is associated with increased frequency of childhood illnesses and can also reduce lung function in children. For the average Californian, 70 percent of cancer risk from breathing toxic air pollutants stem from diesel exhaust particles (OEHHA 2023b).

USEPA's National Scale Assessment uses several types of health hazard information to provide a quantitative "threshold of concern" or a health benchmark concentration at which it is expected that no adverse health effects occur at exposures to that level. Health effects information on carcinogenic, short- and long term non-carcinogenic end points are used to establish selective protective health levels to compare to the modeled exposures levels. The exposure response data in human studies are considered too uncertain to develop a carcinogenic unit risk for USEPA's use. There is a Reference Concentration (RFC) that is used as a health benchmark protective of chronic noncarcinogenic health effects, but it is for diesel exhaust and not specifically set for DPM, which is what was modeled in NATA. The RFC for diesel exhaust, which includes DPM is $5 \mu\text{g}/\text{m}^3$. This value is similar to the National Ambient Air Quality Standard established for fine particulate matter, which is $15 \mu\text{g}/\text{m}^3$ (USEPA 2014a).

- *Emissions.* The quantity of pollutants released into the air, measured in pounds per day (lbs/day) or tons per day (tpd).
- *Greenhouse gases (GHG).* Components of the atmosphere that contribute to the greenhouse effect. The principal greenhouse gases that enter the atmosphere because of human activities are carbon dioxide, methane, nitrous oxide, and fluorinated gases.
- *Visibility.* With the exception of Lake County, which is designated in attainment, all of the air districts in California are currently designated as unclassified with respect to the California Ambient Air Quality Standards (CAAQS) for visibility reducing particles. A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.

Since deterioration of visibility is one of the most obvious manifestations of air pollution and plays a major role in the public's perception of air quality, the state of California has adopted a standard for

visibility or visual range. Until 1989, the standard was based on visibility estimates made by human observers. The standard was changed to require measurement of visual range using instruments that measure light scattering and absorption by suspended particles. The visibility standard is based on the distance that atmospheric conditions allow a person to see at a given time and location. Visibility reduction from air pollution is often due to the presence of sulfur and nitrogen oxides, as well as particulate matter. Visibility degradation occurs when visibility reducing particles are produced in sufficient amounts such that the extinction coefficient is greater than 0.23 inverse kilometers (to reduce the visual range to less than 10 miles) at relative humidity less than 70 percent, 8-hour average (from 10 a.m. to 6 p.m.) according to the state standard.

3.3.2 ENVIRONMENTAL SETTING

The six-county SCAG region encompasses 38,000 square miles of area (almost 25 million acres) and is home to approximately 18.8 million people as of 2019, making it the largest and most diverse region in the U.S. (U.S. Census Bureau 2023).

Air quality in the four air basins in the SCAG region—South Coast Air Basin (SCAB), Mojave Desert Air Basin (MDAB), Salton Sea Air Basin (SSAB), and South Central Coast Air Basin (SCCAB) (Ventura County portion)—is a function of the topography, climate, population, and land use. While improved from the 1970s, Southern California consistently ranks as some of the worst air quality in the nation. The American Lung Association’s State of the Air Report 2023 ranks the Los Angeles-Long Beach metropolitan area as ninth worst in the nation for people at risk for 24-hour PM_{2.5}, fourth worst for annual PM_{2.5}, and worst for most ozone-polluted cities (American Lung Association 2023a).

TOPOGRAPHY, CLIMATE, AND METEOROLOGY

The SCAG region has a greatly varied topography from lakes to mountains, valleys, hills, basins, and urban areas. The topography and meteorological conditions define the climate of the region because air quality is a function of the rate and location of pollutant emissions. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients, along with local topography, influence the movement and dispersal of pollutants and thereby provide the link between air pollutant emissions and air quality. Southern California has strong temperature inversions in the lower atmosphere that can trap pollutants near the surface. Meteorology affects air quality trends that may mask emission reduction benefits. Meteorology also affects different pollutants differently. Warm and sunny weather, which is typical of Southern California, leads to higher ozone days because sunlight aids the chemical reactions that form ozone. On the other hand, windy weather will spread primary particulate matter from direct emissions leading to high PM concentrations in the air. Secondary PM, including particulate nitrates and sulfates, is more prevalent in the air during cold, calm, and humid weather conditions. Rain and wind reduce PM concentration in the air (CARB 2013). The local topography and climate conditions are described in greater detail specific to each air basin as listed below. These air basins are geographically defined because the travel of air pollution can be trapped by natural barriers like mountains unless the prevailing winds are powerful enough to disperse it to other areas (SCAQMD 2023c).

SOUTH COAST AIR BASIN

The SCAB incorporates approximately 12,000 square miles, consisting of Orange County and the urbanized areas of San Bernardino, Riverside, and Los Angeles Counties. In May 1996, the boundaries of the SCAB were changed by CARB to include the Beaumont-Banning area. The distinctive climate of the SCAB is

determined by its terrain and geographic location. The SCAB is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the southwest and high mountains around the rest of its perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds (SCAQMD 1993).

The vertical dispersion of air pollutants in the SCAB is hampered by the presence of persistent temperature inversions. High-pressure systems, such as the semi-permanent high-pressure zone in which the SCAB is located, are characterized by an upper layer of dry air that warms as it descends, restricting the mobility of cooler marine-influenced air near the ground surface, and resulting in the formation of subsidence inversions. Such inversions restrict the vertical dispersion of air pollutants released into the marine layer and, together with strong sunlight, can produce worst-case conditions for the formation of photochemical smog. The basin-wide occurrence of inversions at 3,500 feet above sea level or less averages 191 days per year (SCAQMD 1993).

The atmospheric pollution potential of an area is largely dependent on winds, atmospheric stability, solar radiation, and terrain. The combination of low wind speeds and low inversions produces the greatest concentration of air pollutants. On days without inversions, or on days of winds averaging over 15 miles per hour, smog potential is greatly reduced (SCAQMD 1993).

MOJAVE DESERT AIR BASIN

The MDAB encompasses approximately 21,480 square miles and includes the desert portions of San Bernardino County, Palo Verde Valley, Palmdale, and Lancaster in the Antelope Valley. The MDAB is bordered by the SCAB and the Riverside County line to the south, Kern County line to the west, the Arizona and Nevada borders to the north and east, and the eastern portion of Riverside County to the southeast (CARB 2014). The Kern County portion of MDAB is not in the SCAG region.

The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes (MDAQMD 2016a). Many of the lower mountains that dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada Mountains to the north; air masses pushed onshore in Southern California by differential heating are channeled through the MDAB. The MDAB is separated from the Southern California coastal and central California valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevada in the north by the Tehachapi Pass (3,800 feet elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 feet). The Mojave Desert is bordered in the southwest by the San Bernardino Mountains, separated from the San Gabriel Mountains by the Cajon Pass (4,200 feet). A lesser channel lies between the San Bernardino Mountains and the Little San Bernardino Mountains (the Morongo Valley).

The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose primary channel is the San Gorgonio Pass (2,300 feet) between the San Bernardino and San Jacinto Mountains.

During the summer, the MDAB is generally influenced by a Pacific subtropical high cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold

air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time they reach the desert. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south. The MDAB averages between 3 and 7 inches of precipitation per year (from 16 to 30 days with at least 0.01 inch of precipitation) (County of Riverside 2018). The MDAB is classified as a dry-hot desert climate, with portions classified as dry-very hot desert, to indicate at least three months have maximum average temperatures over 100.4 degrees Fahrenheit (°F).

SALTON SEA AIR BASIN

The SSAB includes Imperial County and the desert portion of Riverside County between the SCAB and the MDAB (known as the Coachella Valley). Imperial County extends over 4,284 square miles in the southeastern corner of California, bordering on Mexico to the south, Riverside County to the north, San Diego County on the west, and the State of Arizona on the east. The Salton Trough runs northwest to southeast through the center of Imperial County and extends into Mexico. The elevation in Imperial County ranges from about 230 feet below sea level at the Salton Sea in the north to more than 2,800 feet on the mountain summits to the east (ICAPCD 2017b).¹

Climatic conditions in the SSAB are governed by the large-scale sinking and warming of air in the semi-permanent subtropical high-pressure center of the Pacific Ocean. The high-pressure ridge blocks out most mid-latitude storms except in the winter when the high is weakest and farthest south. The coastal mountains prevent the intrusion of any cool, damp marine air found in California coastal environs. Because of the weakened storms and the orographic barrier, the SSAB experiences clear skies, very low humidity, extremely hot summers, mild winters, and little rainfall. The flat terrain of the valley and the strong temperature differentials created by intense solar heating produce moderate winds and deep thermal convection (ICAPCD 2017b).

The combination of subsiding air, protective mountains, and distance from the ocean severely limits precipitation. Rainfall is highly variable, with heavy precipitation occurring from single storms followed by periods of dry air. Humidity is typically low throughout the year, ranging from 28 percent in summer to 52 percent in winter (ICAPCD 2017b).

The wind in Imperial County follows two general patterns. Prevailing winds are from the west-northwest through southwest. Also evident is a secondary flow maximum from the southeast. The prevailing winds from the west and northwest occur seasonally from fall through spring and are known to be from the Los Angeles area. Imperial County experiences periods of extremely high wind speeds. Wind speeds can exceed 31 miles per hour, and this occurs primarily during April and May. However, wind speeds of less than 6.8 miles per hour account for more than half of the observed wind measurements (ICAPCD 2017b).

SOUTH CENTRAL COAST AIR BASIN

The SCAG region includes the Ventura County portion of the SCCAB. Ventura County is made up of coastal mountain ranges, the coastal shore, the coastal plain, and several inland valleys (VCAPCD 2022). The northern half of the county (Los Padres National Forest) is extremely mountainous with altitudes up to 8,800 feet. Consequently, the climate in the northern half of the county varies a great deal depending on elevation. Therefore, the climatological and meteorological description presented for Ventura County focuses on the

¹ Note that CARB adopted the 2018 Updates to the SIP, which updated the 2011 baseline emissions inventory for Imperial County, but this document was used to provide details for the SSAB environmental setting.

southern half of the county where violations of federal and state ozone standards occur. In the winter, low-pressure systems originating in the northern Pacific Ocean bring clouds, rain, and wind into Ventura County.

The average annual temperature in the coastal and inland valleys of the southern half of Ventura County ranges from the upper 50s at the coast (Point Mugu) to the mid-60s in Simi Valley. The difference between the maximum and minimum temperatures becomes greater as the distance increases from the coast. The average minimum and maximum temperatures at Point Mugu are 50°F and 60°F, respectively, while at the inland location of Simi Valley, the averages are 52°F and 77°F. The smaller range of temperatures at Point Mugu demonstrates the moderating influence of the ocean on air temperature. The ocean's ability to warm and cool the air while its temperature remains relatively unchanged produces the moderating effect. Inland area temperatures are more prone to rapid fluctuations. Almost all rainfall in Ventura County falls during the winter and early spring (November through April). Summer rainfall is normally restricted to scattered thundershowers in lower elevations and somewhat heavier activity in the mountains. Humidity levels vary throughout the County. The range of humidity is primarily influenced by proximity to the ocean. Although the County's climate is semiarid, average humidity levels are relatively high due to the marine influence. Coastal areas are more humid than inland areas during typical fair weather. The reverse is true during stormy periods. The lowest humidity levels are recorded during Santa Ana wind conditions.

Ventura County winds are dominated by a diurnal land-sea breeze cycle. The land-sea breeze regime is broken only by occasional winter storms and infrequent strong northeasterly Santa Ana wind flows. Since the sea breeze is stronger than the land breeze, the net wind flow during the day is from west to east. Under light land-sea breeze regimes, recirculation of pollutants can occur as emissions move westward during morning hours, and eastward during the afternoon. This can cause a buildup of pollutants over several days.

The vertical dispersion of air pollutants in Ventura County is limited by the presence of persistent temperature inversions. Approximately 60 percent of all inversions measured at Point Mugu are surface based, with most occurring during the morning hours.

REGIONAL AIR QUALITY

In Southern California, the American Lung Association consistently gives counties within the SCAG region failing grades in the amount of ozone and particulate pollution in the air. The American Lung Association has assigned grades to each of the counties in the SCAG region for 2023 (**Table 3.3-1, American Lung Association Report Card for SCAG Region**). Grades were calculated from a weighted average based on the total number of days in each air quality index level. The weighted average was derived by counting the number of days in each unhealthful range in each year, multiplying the total in each range by the assigned standard weights, and calculating the average. All six counties in the SCAG region received a failing grade for ozone, which means there were a significant number of unhealthy air days relative to the ozone standard. For ozone, an "F" grade was set to generally correlate with the number of unhealthy air days that would place a county in nonattainment for the ozone standard. For short-term particle pollution, fewer unhealthy air days are required for an F than for nonattainment under the PM_{2.5} standard. For PM_{2.5}, the national standard allows 2 percent of days in a three-year period to exceed 35 µg/m³, which is roughly 21 unhealthy days in three years, but the American Lung Association uses a more restrictive 1 percent or 99th percentile limit to protect the public from short term spikes in pollution.

TABLE 3.3-1 American Lung Association Report Card for SCAG Region

COUNTY	OZONE GRADE	PARTICLE POLLUTION GRADE
Imperial	F	D
Los Angeles	F	F
Orange	F	F
Riverside	F	F
San Bernardino	F	F
Ventura	F	D

Source: American Lung Association 2023a

PARTICLE POLLUTION

Particle pollution results from a variety of sources including fuel combustion (e.g., motor vehicles, power generation, industrial facilities); residential fireplaces and wood stoves; crushing or grinding operations; dust stirred up by vehicles traveling on roads; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; atmospheric chemical and photochemical reactions; and windblown dust from open lands. Windblown dust typically results from sources including agricultural operations; grading of previously covered or vegetated areas without reapplication of cover; vegetation or dust suppressants; and re-entrained dust from previously settled dust on solar panels. In addition, as discussed in Section 3.7, *Geology and Soils*, of this 2024 PEIR, human activities associated with development such as grading, particularly on slopes, increase the risk for soil erosion in affected areas where soil erosion and loss of topsoil are concerns in the context of air quality as it increases the risks of dust storms.

In December 2009, the USEPA linked fine particle pollution (PM_{2.5}) to public health impacts. The USEPA determined that fine particle pollution could cause early death, cardiovascular harm, respiratory harm, cancer, and reproductive and developmental harm. In the short term, particle pollution reduces lung function and increases lung tissue inflammation in young, healthy adults. Short-term exposure increases emergency room visits for patients with acute respiratory illnesses, increases number of heart attacks, increases school absenteeism, increases hospitalization of children with asthma, and can even result in deaths on days of high levels of particle pollution (American Lung Association 2023b). Asthma in the SCAG region ranges from 28 to 80 per 10,000 people (**Table 3.3-2, Population-Weighted Asthma Rate per 10,000**). Asthma rates are a good indicator of population sensitivity to environmental stressors because asthma is both caused by and exacerbated by pollutants.

In 2014, the World Health Organization’s International Agency for Research on Cancer linked long-term exposure to particle pollution to increased risk of developing lung cancer (World Health Organization International Agency for Research on Cancer 2014). Other studies have shown long-term particle pollution exposure increases hospitalization of children with asthma living near busy roads with heavy truck traffic, reduces lung function in children and teenagers, damages small airways of the lungs, increases risk of death from cardiovascular disease, and increases risk of lower birth weight and infant mortality (American Lung Association 2023b).

TABLE 3.3-2 Population-Weighted Asthma Rate per 10,000

COUNTY	ASTHMA RATE PER 10,000
Imperial	79.8
Los Angeles	53.4
Orange	27.9
Riverside	49.6
San Bernardino	60.9
Ventura	36.8
SCAG Region	49.3

Source: CalEnviroScreen4.0 2021

Particle pollution particularly has a detrimental effect on sensitive populations including children, elderly, and those with respiratory or cardiovascular illnesses. In March 2015, OEHHA amended their Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments to consider the impact of age, breathing rates, and exposure levels into their cancer risk calculation methodology (OEHHA 2015).

Particulate matter pollution is anticipated to increase due to climate change, which can lead to worsening asthma symptoms, chronic obstructive pulmonary disease (COPD), and respiratory infections associated to premature mortality. Increasing temperatures due to climate change are also anticipated to lead to an increase in wildfires across California. Wildfires are a significant source of smoke and particulate matter exposure. The risk from fires persists even after a wildfire is extinguished because particulate matter from fire ash can be picked up by the winds (OEHHA 2016).

Map 3.3-1, Average Annual Concentration of PM2.5, shows the average annual exposure to PM2.5 in the SCAG region for years 2015 to 2017. Parts of Los Angeles County, southwest San Bernardino County, and northwest Riverside County experienced the highest average annual exposure to PM2.5. Average concentrations in these high exposure areas range from 13.1 to 16.4 micrograms of PM2.5 per cubic meter of air. This range exceeds the federal 15 µg/m³ standard and is also above the state standard of 12 µg/m³.

OZONE

Ozone is formed when sunlight reacts with NO_x, VOCs, and/or CO. These compounds are typically found in vehicle exhaust but can also be released into the atmosphere from other sources like chemical solvents, power plants, gas stations, paints, and refineries. In April 2020, the USEPA published the “Integrated Science Assessment for Ozone and Related Photochemical Oxidants.” The report concluded that ozone pollution causes respiratory harm, is likely to cause early death and cardiovascular harm, may cause harm to the central nervous system, and may cause reproductive and developmental harm (USEPA 2020). High levels of ozone can result in premature death and stroke, acute breathing problems like shortness of breath, wheezing, and coughing, asthma attacks, increase in risk of respiratory infection, increase susceptibility to pulmonary inflammation, and increase in hospitalization and emergency room visits for those with asthma, chronic obstructive pulmonary disease, cardiovascular disease and lung disease. Long term ozone exposure is connected to higher risk of death from respiratory diseases, higher risk of hospitalization for children with asthma especially those that are also low income, higher risk of developing asthma, lower birth weight and decreased lung function in newborns (USEPA 2020). Similar to particle pollution, ozone has a detrimental effect on sensitive populations including children, elderly, and those with respiratory or cardiovascular illnesses.

Map 3.3-2, Average Daily Ozone Exposure in Excess of National 8-Hour Standard, shows the average daily ozone exposure in the SCAG region that is in excess of the national 8-hour standard (0.070 ppm) in the SCAG region for years 2015 to 2017. Although the region largely experiences average daily ozone exposure exceeding the federal standard, the highest concentration of ozone exposure can be seen mostly in southwest San Bernardino and northwest Riverside Counties, and also in north Los Angeles County.

SENSITIVE RECEPTORS

There are many sensitive receptors located throughout the SCAG region. Some persons, such as those with respiratory illnesses or impaired lung function due to other illnesses, people with cardiovascular diseases or diabetes, the elderly over 65 years of age, and children under 14 years of age, can be particularly sensitive to emissions of criteria pollutants. These are the populations most at risk to poor air quality. Facilities and structures where sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses identified by South Coast Air Quality Management District (SCAQMD) in the CEQA Air Quality Handbook to be sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

ATTAINMENT STATUS

NATIONAL AMBIENT AIR QUALITY STANDARDS

The federal CAA required USEPA to establish NAAQS. The NAAQS set primary standards and secondary standards for specific air pollutants. Primary standards define limits for the intention of protecting public health, which include sensitive populations such as asthmatics, children, and the elderly. Secondary Standards define limits to protect public welfare to include protection against decreased visibility, damage to animals, crops, vegetation, and buildings. A summary of the federal ambient air quality standards is shown in **Table 3.3-3, National Ambient Air Quality Standards**.

TABLE 3.3-3 National Ambient Air Quality Standards

POLLUTANT		PRIMARY/SECONDARY	AVERAGING TIME	LEVEL
Carbon monoxide		Primary	8 hours	9 ppm
			1 hour	35 ppm
Lead		Primary and secondary	Rolling 3-month average	0.15 µg/m ³
Nitrogen dioxide		Primary	1 hour	100 ppb
		Primary and secondary	Annual	0.053 ppm
Ozone		Primary and secondary	8 hours	0.070 ppm
Particulate matter	PM2.5	Primary	Annual	12 µg/m ³
		Secondary	Annual	15 µg/m ³
	Primary and secondary	24 hours	35 µg/m ³	
	PM10	Primary and secondary	24 hours	150 µg/m ³
Sulfur dioxide		Primary	1 hour	75 ppb
		Secondary	3 hours	0.5 ppm

Source: CARB 2016a

The federal CAA sets NAAQS for the main criteria air pollutants: NO_x, VOC, PM_{2.5}, PM₁₀, SO_x, CO, and lead. Attainment and nonattainment of the NAAQS are variable throughout the SCAG region’s counties (**Table 3.3-4, 2023 Nonattainment in Counties in the SCAG Region for All Criteria Pollutants by County by NAAQS**).

TABLE 3.3-4 2023 Nonattainment Areas in the SCAG Region for All Criteria Pollutants by County by NAAQS

POLLUTANT (YEAR)	NONATTAINMENT AREA
Imperial County	
PM-10 (1987)	Imperial Valley, CA – (Serious)
PM-2.5 (2006)	Imperial Co, CA – (Moderate)
PM-2.5 (2012)	Imperial Co, CA – (Moderate)
8-Hr Ozone (2008)	Imperial Co, CA – (Moderate)
8-Hr Ozone (2015)	Imperial Co, CA – (Marginal)
Los Angeles County	
Lead (2008)	Los Angeles County-South Coast Air Basin, CA
PM-2.5 (1997)	Los Angeles-South Coast Air Basin, CA – (Moderate)
PM-2.5 (2006)	Los Angeles-South Coast Air Basin, CA – (Serious)
PM-2.5 (2012)	Los Angeles-South Coast Air Basin, CA – (Serious)
8-Hr Ozone (2008)	Los Angeles-South Coast Air Basin, CA – (Extreme)
8-Hr Ozone (2015)	Los Angeles-South Coast Air Basin, CA – (Extreme)
Orange County	
PM-2.5 (1997)	Orange-South Coast Air Basin, CA – (Moderate)
PM-2.5 (2006)	Orange-South Coast Air Basin, CA – (Serious)
PM-2.5 (2012)	Orange-South Coast Air Basin, CA – (Serious)
8-Hr Ozone (2008)	Orange-South Coast Air Basin, CA – (Extreme)
8-Hr Ozone (2015)	Orange-South Coast Air Basin, CA – (Extreme)
Riverside County	
PM-10 (1987)	Coachella Valley, CA – (Serious)
PM-2.5 (1997)	Riverside-South Coast Air Basin, CA – (Moderate)
PM-2.5 (2006)	Riverside-South Coast Air Basin, CA – (Serious)
PM-2.5 (2012)	Riverside-South Coast Air Basin, CA – (Serious)
8-Hr Ozone (2015)	Riverside-South Coast Air Basin, CA – (Extreme)
8-Hr Ozone (2008)	Riverside-Coachella Valley, CA – (Extreme)
8-Hr Ozone (2015)	Riverside-Coachella Valley, CA – (Severe 15)
San Bernardino County	
PM-10 (1987)	San Bernardino Co, CA – (Moderate)
PM-10 (1987)	Searles Valley, CA – (Moderate)
PM-2.5 (1997)	San Bernardino-South Coast Air Basin, CA – (Moderate)
PM-2.5 (2006)	San Bernardino-South Coast Air Basin, CA – (Serious)
PM-2.5 (2012)	San Bernardino-South Coast Air Basin, CA – (Serious)

POLLUTANT (YEAR)	NONATTAINMENT AREA
8-Hr Ozone (2008)	San Bernardino-West Mojave Desert, CA – (Severe 15)
8-Hr Ozone (2008)	San Bernardino-South Coast Air Basin, CA – (Extreme)
8-Hr Ozone (2015)	San Bernardino-West Mojave Desert, CA – (Severe 15)
8-Hr Ozone (2015)	San Bernardino-South Coast Air Basin, CA – (Extreme)
Ventura County	
8-Hr Ozone (2008)	Ventura County, CA – (Serious)
8-Hr Ozone (2015)	Ventura County, CA – (Serious)

Source: USEPA 2023e.

CALIFORNIA AMBIENT AIR QUALITY STANDARDS

The federal CAA permits states to adopt additional or more protective air quality standards if needed. California has set standards for certain pollutants, such as particulate matter and ozone, which are more protective of public health than respective federal standards. California has also set standards for some pollutants that are not addressed by federal standards (CARB 2023b). The state standards for ambient air quality are summarized in **Table 3.3-5, California Ambient Air Quality Standards**.

TABLE 3.3-5 California Ambient Air Quality Standards

POLLUTANT		AVERAGING TIME	LEVEL
Carbon monoxide		8 hours	9 ppm
		1 hour	20 ppm
Lead		30-day average	1.5 µg/m ³
Nitrogen dioxide		1 hour	0.180 ppm
		Annual	0.030 ppm
Ozone		8 hours	0.070 ppm
		1 hour	0.09 ppm
Particulate matter	PM2.5	Annual	12 µg/m ³
	PM10	24 hours	50 µg/m ³
		Annual	20 µg/m ³
Sulfur dioxide		1 hour	0.25 ppm
		24 hours	0.04 ppm
Sulfates		24 hours	25 µg/m ³
Hydrogen sulfide		1 hour	0.03 ppm
Vinyl chloride		24 hours	0.01 ppm

Source: CARB 2016a

CAAQS are listed in the Table of Standards in California Code of Regulations Title 17, Section 70200. California has set standards for certain pollutants, such as particulate matter and ozone, which are more protective of public health than respective federal standards. California has also set standards for some pollutants that are not addressed by federal standards such as visibility reducing particles and vinyl chloride (**Table 3.3-6, CAAQS Area Designations**).

TABLE 3.3-6 CAAQS Area Designations

AIR BASIN	OZONE	PM2.5	PM10	CO	NO2	SO2	SULFATES	HYDROGEN SULFIDE (H2S)	PB	VISIBILITY-REDUCING PARTICLES
Mojave Desert	Nonattainment	Attainment	Nonattainment	Kern County (MDAB) (U); Los Angeles County (MBAB) (A); Riverside County (MDAB) (U); San Bernardino County (MDAB) (A)	Attainment	Attainment	Attainment	Kern County (MDAB) (U); Los Angeles County (MDAB)(U); Riverside County (MDAB)(U); San Bernardino County Searles Valley Planning Area (MDAB)(N)	Attainment	Unclassified
Salton Sea	Nonattainment	City of Calexico (N), Remainder of County (A)	Nonattainment	Attainment	Attainment	Attainment	Attainment	Unclassified	Attainment	Unclassified
South Central Coast (Ventura County)	Nonattainment	Attainment (Santa Barbara County Unclassified [U])	Nonattainment	Attainment	Attainment	Attainment	Attainment	Unclassified	Attainment	Unclassified
South Coast	Nonattainment	Nonattainment	Nonattainment	Attainment	CA 60 Near-road Portion of San Bernardino, Riverside, and Los Angeles Counties (N); Remainder of Air Basin (U)	Attainment	Attainment	Unclassified	Attainment	Unclassified

Source: CARB 2020

EXISTING CRITERIA POLLUTANT EMISSIONS

The existing conditions (base year 2019) of the criteria pollutant emissions for the six counties in the SCAG region are shown in **Table 3.3-7, Criteria Pollutant Emissions by County—Existing Conditions (2019)**.

TABLE 3.3-7 Criteria Pollutant Emissions by County—Existing Conditions (2019)

COUNTY	[TONS/DAY]								
	ROG		NOX			CO	PM10	PM2.5	SOX
	SUMMER	ANNUAL	SUMMER	ANNUAL	WINTER	WINTER	ANNUAL	ANNUAL	ANNUAL
Imperial	2	2	5	6	6	16	0.3	0.1	<0.1
Los Angeles	53	52	84	93	91	497	6.9	3.0	1.0
Orange	16	16	22	25	24	149	2.2	0.9	0.3
Riverside	14	13	28	31	30	115	2.0	0.9	0.3
San Bernardino	16	15	32	35	34	129	2.2	1.0	0.3
Ventura	3	3	6	7	6	25	0.5	0.2	0.1

Source: SCAG 2023b

The SCAG region is encompassed by CARB’s air quality monitoring program. The air monitoring stations collect ambient level measurements for criteria pollutants. The data generated are used to define the nature and severity of pollution in California; determine which areas of California are in attainment or non-attainment; identify pollution trends in the state; support agricultural burn forecasting; and develop air models and emission inventories (CARB 2023a). There are 92 active air monitoring stations in the SCAG region: 11 in Imperial County, 31 in Los Angeles County, five in Orange County, 18 in Riverside County, 20 in the San Bernardino County, and seven in Ventura County. These monitoring stations are shown in **Map 3.3-3, Air Quality Basins and Monitoring Stations** (CARB 2023g).

HEALTH RISK ASSESSMENT, NO2 CONCENTRATION AND NITROGEN DEPOSITION ASSESSMENT

The Health Risk Assessment (HRA) (**Appendix B-2**) assesses the potential carcinogenic risk to persons potentially exposed to harmful diesel exhaust emissions near freeways within the SCAG region. Using the USEPA-approved CARB On-Road Vehicle Emission Factors (EMFAC2021) model, effective November 15, 2022, exhaust DPM (modeled as PM2.5 and PM10) is modeled because DPM has carcinogenic health effects. Cancer risk is used as a proxy for overall health effects in this assessment. Discussed in more detail in Appendix B-2 and Chapter 4.0, *Alternatives*, of this PEIR, the model simulates three conditions: existing conditions, 2050 No Project, and 2050 under Connect SoCal 2024 (additional build scenarios are discussed qualitatively). Comparison between the existing conditions and the Plan is described in Section 3.3.4, *Environmental Impacts*.

Emissions and cancer risk are evaluated along 16 transportation corridors within the SCAG region. The corridors were determined in prior RTP/SCS PEIRs primarily based on highest traffic volumes, highest heavy-duty diesel truck volumes (HDDT) as well as proximity to sensitive receptors. Quantitative modeling of the entire length of each freeway corridor (some of which extend more than 90 miles) is impractical and therefore representative high-volume segments were selected.

For this analysis, 16 transportation corridor segments (previously evaluated in the 2016 RTP/SCS PEIR [SCAG 2016] and the 2020 RTP/SCS PEIR) were evaluated (see **Map 3.3-4, Overview of Modeled Freeway Segments**). By selecting the same 16 segments as evaluated in 2016 and 2020, it affords an opportunity to view progress since the adoption of the RTP/SCS iterations. Eight of the sixteen segments were also previously evaluated in the 2012 RTP/SCS. When selecting the additional eight segments for analysis in 2016, SCAG ranked potential transportation segments by the volume of HDDT traffic. Segments were then ranked again based on the density of sensitive receptors. Using these rankings, one segment was chosen in each county and an additional two segments in Los Angeles and Riverside Counties were chosen based on heavy-duty diesel traffic. These 16 segments were then quantitatively modeled for increased cancer risk (see Table 3.3-18, *Summary Maximum Exposed Individual Residential 30-Year Exposure Cancer Risk*, below).

HDDT comprise the majority of DPM emissions. An air quality dispersion model (AERMOD) was used to calculate the anticipated DPM concentrations at identified receptors out to 1,000 meters away from each freeway segment. Risk calculations were undertaken for worker, residential, and school sensitive receptors. Table 3.3-18 presents a summary of the cancer risk per million exposed persons for each of the three scenarios and 16 freeway segments. The HRA (see Appendix B-2) also includes a discussion comparing the health risk calculations at each segment under Connect SoCal 2024 as well as the plans from the 2012 RTP/SCS, 2016 RTP/SCS and 2020 RTP/SCS.

In addition, for the same 16 transportation segments, a quantitative analysis of the NO₂ concentrations at near-freeway sensitive receptors was conducted for the health impacts analysis. Like the HRA, the NO₂ concentrations associated with the three additional no-build and build simulations are discussed qualitatively. The NO₂ emissions associated with each segment were obtained from the AERMOD dispersion model in order to estimate concentrations at the sensitive receptor locations surrounding each of the 16 segments (see section Methodology, below, for additional details).

In addition to impacts to human health, air pollutants have the potential to impact plants including trees and agricultural crops and wildlife. Impacts to sensitive species can be particularly important because such species are typically already stressed, and the additional stressor of poor air quality can have a disproportionate impact. The potential damage ranges from decreases in productivity, a weakened ability to survive drought and pests, to direct mortality. Wildlife can be both directly impacted by air pollution and also as the plants and trees that comprise their habitats are weakened or killed. Aquatic species and habitats are impacted by air pollution through the formation of acid rain that raises the pH level in oceans, rivers, and lakes (USEPA 2023n). Nitrogen deposition occurs from the emissions of nitrogen-based pollutants, like those occurring from the combustion of fossil fuels. Increases in nitrogen deposition can lead to soil and water acidification, plant nutrient imbalances, declines in plant health, changes in species composition, increases in invasive species and increased susceptibility to secondary stresses. Nitrogen deposition includes both wet and dry oxidized and reduced nitrogen. Wet deposition is when rain, snow, or fog carries gases and particles to the earth's surface. Dry deposition is when gases and particles are carried to the surface in the absence of rain, snow, or fog.

Combustion of fossil fuels from mobile sources results in the emissions of nitrogen-based pollutants and the deposition of nitrogen. It is expected that much of the nitrogen deposition will occur very close to the sources along the major roadways studied. Air dispersion modeling will demonstrate the relationship between nitrogen deposition and distance from roadway sources. However, studies have also shown that long distance transportation of nitrogen may result in higher-than-expected amounts of nitrogen depositions in potentially fire-prone regions, resulting in added plant life growth and higher risk of wildfires. However, long distance transportation modeling was not examined as part of the analysis in this PEIR (Heindel et al. 2022).

Regional nitrogen deposition is quantified for the same 16 segments by using the wet and dry gaseous deposition algorithms in the AERMOD dispersion model. Nitrogen deposition is quantified for Existing (2019) and 2050 Plan. But as there is no national or state standard for comparison and no guidance on how to analyze air quality impacts from nitrogen deposition under CEQA, nitrogen deposition results are primarily disclosed for informational purposes (see section Methodology, below, for additional details).

AMBIENT AIR QUALITY

The five air districts in the SCAG region each monitor air quality conditions in their region. The characterization of the ambient air quality in relation to criteria pollutants was based on peak readings of criteria pollutants in the SCAG air basins (**Table 3.3-8, Peak Criteria Pollutants Readings for the SCAG Region Air Basins**). The data shows that ozone, PM2.5, and PM10 readings consistently exceeded the standards in each of the air basins.

TABLE 3.3-8 Peak Criteria Pollutants Readings for the SCAG Region Air Basins

POLLUTANT	PERIOD	POLLUTANT STANDARDS		2019 PEAK CRITERIA READING		DAYS IN EXCESS OF STANDARDS 2019		2020 PEAK CRITERIA READING		DAYS IN EXCESS OF STANDARDS 2020		2021 PEAK CRITERIA READING		DAYS IN EXCESS OF STANDARDS 2021	
		CA	FEDERAL			CA	FEDERAL			CA	FEDERAL			CA	FEDERAL
		CA	FEDERAL	CA	FEDERAL	CA	FEDERAL	CA	FEDERAL	CA	FEDERAL	CA	FEDERAL		
South Coast Air Basin															
Ozone (O3)	1-hour	0.09 ppm (180 µg/m³)	—	0.137		73	8	0.185		104	17	0.148		74	7
	8-hour	0.07 ppm (137 µg/m³)	0.07 ppm (137 µg/m³)	0.118		129	126	0.139		160	157	0.120		133	130
Respirable particulate matter (PM10)	24-hour	50 µg/m³	150 µg/m³	CA 182.4	Federal 283.5	116	2	CA 185.2	Federal 324.7	36	2	CA 138.5	Federal 233.3	91	2
Fine particulate matter (PM2.5)	24-hour	—	35 µg/m³	CA 120.9	Federal 81.3	—	10	CA 175.0	Federal 175.0	—	19	CA 105.8	Federal 102.1	—	14
Nitrogen dioxide (NO2)	1-hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	CA 97	Federal 97.7	0	0	CA 101	Federal 101.6	0	1	CA 91	Federal 91.5	0	0
Mojave Desert Air Basin															
Ozone (O3)	1-hour	0.09 ppm (180 µg/m³)	—	0.119		12	0	0.130		19	1	0.131		31	3
	8-hour	0.07 ppm (137 µg/m³)	0.07 ppm (137 µg/m³)	CA 0.090	Federal 0.090	75	72	CA 0.101	Federal 0.100	89	85	CA 0.107	Federal 0.106	77	75
Respirable particulate matter (PM10)	24-hour	50 µg/m³	150 µg/m³	CA 240.8	Federal 248.7	15	2	CA 360.9	Federal 401.5	29	1	CA 330.6	Federal 591.6	33	1
Fine particulate matter (PM2.5)	24-hour	—	35 µg/m³	CA 34.1	Federal 34.1	—	0	CA 125.4	Federal 125.4	—	15	CA 178	Federal 178	—	12
Nitrogen dioxide (NO2)	1-hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	CA 59	Federal 59.8	0	0	CA 62	Federal 62.8	0	0	CA 62	Federal 62.4	0	0
Salton Sea Air Basin															
Ozone (O3)	1-hour	0.09 ppm (180 µg/m³)	—	0.106		5	0	0.119		9	0	0.122		10	0
	8-hour	0.07 ppm (137 µg/m³)	0.07 ppm (137 µg/m³)	CA 0.089	Federal 0.089	47	43	CA 0.094	Federal 0.094	53	49	CA 0.095	Federal 0.094	38	35

POLLUTANT	PERIOD	POLLUTANT STANDARDS		2019 PEAK CRITERIA READING		DAYS IN EXCESS OF STANDARDS 2019		2020 PEAK CRITERIA READING		DAYS IN EXCESS OF STANDARDS 2020		2021 PEAK CRITERIA READING		DAYS IN EXCESS OF STANDARDS 2021	
		CA	FEDERAL			CA	FEDERAL			CA	FEDERAL			CA	FEDERAL
Respirable particulate matter (PM10)	24-hour	50 µg/m ³	150 µg/m ³	CA 323.5	Federal 324.4	112	2	CA 297.2	Federal 680.6	166	10	CA 543.1	Federal 547.1	151	3
Fine particulate matter (PM2.5)	24-hour	—	35 µg/m ³	CA 53.1	Federal 53.1	—	1	CA 47.4	Federal 47.4	—	5	CA 60.8	Federal 60.8	—	2
Nitrogen dioxide (NO ₂)	1-hour	0.18 ppm (339 µg/m ³)	100 ppb (188 µg/m ³)	CA 96	Federal 96.2	0	0	CA 75	Federal 75.6	0	0	CA 61	Federal 61.7	0	0
South Central Coast Air Basin															
Ozone (O ₃)	1-hour	0.09 ppm (180 µg/m ³)	—	0.091		0	0	0.126		5	1	0.090		0	0
	8-hour	0.07 ppm (137 µg/m ³)	0.07 ppm (137 µg/m ³)	CA 0.079	Federal 0.078	9	7	CA 0.106	Federal 0.106	26	22	CA 0.081	Federal 0.079	8	8
Respirable particulate matter (PM10)	24-hour	50 µg/m ³	150 µg/m ³	CA 192.4	Federal 187.8	57	2	CA 357.2	Federal 367.8	55	6	CA 125	Federal 377.8	44	1
Fine particulate matter (PM2.5)	24-hour	—	35 µg/m ³	CA 26.3	Federal 26.3	—	0	CA 242.1	Federal 242.1	—	11	CA 33.5	Federal 33.5	—	0
Nitrogen dioxide (NO ₂)	1-hour	0.18 ppm (338 µg/m ³)	100 ppb (190 µg/m ³)	CA 45	Federal 45	0	0	CA 42	Federal 42	0	0	CA 62	Federal 62	0	0

Source: CARB 2023h

Table Notes: CARB does not provide data for carbon monoxide (CO).

* Insufficient data available to determine the value. Measured days equal to number presented.

3.3.3 REGULATORY FRAMEWORK

FEDERAL

FEDERAL CLEAN AIR ACT

Congress passed the first major Clean Air Act (CAA) in 1970 (42 U.S. Code [USC] Sections 7401 et seq.). This Act gives USEPA broad responsibility for regulating motor vehicle emissions from many sources of air pollution from mobile to stationary sources. Pursuant to the CAA, USEPA is authorized to regulate air emissions from mobile sources like heavy-duty trucks, agricultural and construction equipment, locomotives, lawn and garden equipment, and marine engines; and stationary sources such as power plants, industrial plants, and other facilities. The CAA sets NAAQS for the six most common air pollutants to protect public health and public welfare. These pollutants include particulate matter, ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. For each pollutant, USEPA designates an area as attainment for meeting the standard or nonattainment for not meeting the standard. A maintenance designation entails an area that was previously designated as nonattainment but is currently designated as attainment. The CAA directs states to develop state implementation plans (SIP), applicable to appropriate industrial sources in the state, in order to achieve these standards (USEPA 2023m). As discussed in Section 3.3.1, *Environmental Setting*, under *National Ambient Air Quality Standards*, above, the NAAQS set primary standards and secondary standards for criteria air pollutants. Primary standards define limits for the intention of protecting public health and secondary Standards define limits to protect public welfare to include protection against decreased visibility, damage to animals, crops, vegetation, and buildings (see Table 3.3-3, *National Ambient Air Quality Standards*, for a summary of the federal ambient air quality standards).

CAA SECTIONS 112(F) AND 112(D): NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

CAA Section 112 addresses emissions of hazardous air pollutants. Prior to 1990, CAA established a risk-based program under which only a few standards were developed. The 1990 CAAA revised Section 112 to first require issuance of technology-based standards for major sources and certain area sources. "Major sources" are defined as a stationary source or group of stationary sources that emit or have the potential to emit 10 tons per year or more of a hazardous air pollutant or 25 tons per year or more of a combination of hazardous air pollutants. An "area source" is any stationary source that is not a major source (USEPA 2023m).

For major sources, Section 112 requires that USEPA establish emission standards that require the maximum degree of reduction in emissions of hazardous air pollutants. These emission standards are commonly referred to as "maximum achievable control technology" or MACT standards. Eight years after the technology-based MACT standards are issued for a source category, USEPA is required to review those standards to determine whether any residual risk exists for that source category and, if necessary, revise the standards to address such risk (USEPA 2023m).

The Risk and Technology Review (RTR) is a combined effort to evaluate both risk and technology as required by the CAA after the application of MACT standards. CAA Section 112(f) requires USEPA to complete a report to Congress that includes a discussion of methods USEPA would use to evaluate the risks remaining after the application of MACT standards. These are known as residual risks. USEPA published the Residual Risk Report to Congress (PDF) in March 1999. Section 112(f)(2) directs USEPA to conduct risk assessments on each source category subject to MACT standards, and to determine if additional standards are needed to reduce residual risks. CAA Section 112(d)(6) requires USEPA to review and revise the MACT standards, as necessary, taking into account developments in practices, processes and control technologies (USEPA 2023m).

STATE IMPLEMENTATION PLAN/AIR QUALITY MANAGEMENT PLANS

A SIP is required by USEPA to ensure compliance with the NAAQS. States must develop a general plan to maintain air quality in areas of attainment and a specific plan to improve air quality for areas of nonattainment. SIPs are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls. The SIP verifies that the state has a proper air quality management program that adheres to or strives to reach the most up to date emissions requirements (USEPA 2023a). The 1990 amendments to the federal CAA set deadlines for attainment based on the severity of an area's air pollution problem. In adherence to CAA Section 172, states must adopt additional regulatory programs for nonattainment areas (USEPA, Undated). Particularly in California, the SIP not only complies with NAAQS, but also the more stringent CAAQS.

Air quality management plans (AQMP) are required to ensure compliance with the state and federal requirements. AQMPs contain scientific information and use analytical tools to demonstrate a pathway towards achieving attainment for the criteria air pollutants. Within the SCAG region, five air districts—SCAQMD, Mojave Desert Air Quality Management District (MDAQMD), Imperial County Air Pollution Control District (ICAPCD), Antelope Valley Air Quality Management District (AVAQMD), and the Ventura County Air Pollution Control District (VCAPCD)—are responsible for developing the AQMPs (SCAG 2023a). The approval process begins when the local air districts develop, adopt, and subsequently submit their adopted AQMPs/SIPs to CARB. CARB is the lead agency and responsible agency for submitting the SIP to USEPA. CARB forwards SIP revisions to USEPA for approval and publication in the Federal Register. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart F, Section 52.220, lists all of the items included in the California SIP (40 CFR 52.220).

TRANSPORTATION CONFORMITY

Transportation conformity is required under federal CAA Section 176(c) to ensure that federally supported highway and transit project activities are consistent with ("conform to") the purpose and requirements of the SIP. Conformity currently applies to areas that are designated nonattainment, and those redesignated to attainment after 1990 ("maintenance areas"² with plans developed under CAA Section 175A) for the following transportation-related criteria pollutants: ozone, particulate matter (PM_{2.5} and PM₁₀), CO, and NO₂.³ Conformity to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the applicable NAAQS. The transportation conformity regulation is found in 40 CFR Part 93. Conformity requires reporting on the timely implementation of transportation control measures (TCMs) in ozone nonattainment areas designated as serious or worse, thus reinforcing the link between AQMP/SIPs and the transportation planning process. Committed TCMs are required to be given funding priority and to be implemented on schedule, and in the case of any delays, any obstacles to implementation have been or are being overcome. In the SCAG region, there are two areas for which the ozone SIPs contain TCMs: SCAB and the Ventura County portion of SCCAB. (It is noted that the Ventura County SIP does not claim emission reduction credits from TCM projects. They have been included to assist transportation and air quality agencies to identify projects that have the potential of reducing vehicle emissions, vehicle trips, and vehicle miles traveled [USEPA 2009b].)

² Maintenance areas means an area previously designated nonattainment pursuant to CAA and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan.

³ It is important to note that transportation conformity requirements no longer apply to SCAB under the NO₂ NAAQS because the region has attained the standards consistently for over 20 years (USEPA letter to SCAG, April 25, 2019, as cited in SCAG 2020c).

FEDERAL CAA RULES

The mobile and stationary sources of emissions are subject to different rules and regulations. For the mobile sources, the rules apply to cars, trucks, buses, recreational vehicles, engines, generators, farm and construction machines, lawn and garden equipment, marine engines, and locomotives. In addition, the compositions of fuels used to operate mobile sources are regulated to help reduce harmful emissions. For stationary resources including factories and chemical plants, pollution control equipment are installed to meet specific emission limits set under the CAA. The New Source Review (NSR) and Prevention of Significant Deterioration (PSD) require major industrial operators such as coal-fired power, acid, glass, and cement plants and petroleum refineries to make modifications to existing facilities or install new controls resulted in emissions of pollutants on new facilities to reduce degradation and harm against public health. USEPA works with its federal partners through CAA to ensure compliance with rules through active monitoring and to make sure that the regulated community obeys environmental laws/regulations through on-site inspections and record reviews that lead to enforcement in order to meet environmental regulatory requirements (USEPA 2019).

CLEAN AIR ACT WAIVER FOR CALIFORNIA'S GHG EMISSION STANDARDS FOR NEW MOTOR VEHICLES

Due to the unique topography and rapid population increase within the Los Angeles basin, federal standards may not be effective enough to meet clean air standards, therefore the state was granted the ability to create stricter standards than set by the CAA. Utilizing the ability to set stricter emission standards, California was granted a waiver of the CAA in July 2009 so that the state may set its own vehicle emission standards for new motor vehicles in order to reduce GHG and ozone emissions (Federal Register 2009). On September 19, 2019, the USEPA issued the final "One National Program Rule" The rule states that federal law preempts state and local laws regarding tailpipe GHG emissions standards, zero emissions vehicle mandates, and fuel economy for automobiles and light duty trucks. The rule revoked California's Clean Air Act waiver and preempted California's Advanced Clean Car Regulations (U.S. Department of Transportation and USEPA 2019; SCAG 2019b).

However, under the new Biden Administration, in August 2021, USEPA proposed to revise and strengthen the emissions standards for passenger cars and light trucks for model years 2023–2026 (Federal Register 2022a). On March 14, 2022, USEPA issued a notice of decision to reinstate California's Clean Air Act waiver for its Advanced Clean Car regulations (Federal Register 2022b). Refer to Section 3.6, *Energy*, and Section 3.8, *Greenhouse Gas Emissions*, for more information.

MOBILE SOURCE EMISSIONS CONTROLS PROGRAMS

USEPA has adopted several mobile source emission control programs such as (USEPA 2023h):

- **Control of Hazardous Air Pollutants from Mobile Sources.** In February 2007, USEPA finalized this rule to reduce hazardous air pollutants from mobile sources. The rule limits the benzene content of gasoline and reduces toxic emissions from passenger vehicles and gas cans. USEPA estimates that in 2030 this rule would reduce total emissions of mobile source air toxics by 330,000 tons and VOC emissions (precursors to ozone and PM_{2.5}) by over 1 million tons (USEPA 2007).
- **Heavy-Duty Onboard Diagnostic Rule (74 FR 8310).** In February 2009, USEPA published a final rule, requiring that these advanced emissions control systems be monitored for malfunctions via an onboard diagnostic system (OBD), similar to those systems that have been required on passenger cars since the mid-1990s. This final rule will require manufacturers to install OBD systems that monitor the functioning of emission

control components and alert the vehicle operator to any detected need for emission related repair (USEPA 2009a).

- **Small SI and Marine SI Engine Rule (73 FR 25098).** Published October 2008, these exhaust emission standards applied starting in 2010 for new marine spark-ignition (SI) engines, including first-time USEPA standards for sterndrive and inboard engines. The exhaust emission standards applied starting in 2011 and 2012 for different sizes of new land based, spark-ignition engines at or below 19 kilowatts (kW). These small engines are used primarily in lawn and garden applications. Estimated annual nationwide reductions are anticipated to be 604,000 tons of volatile organic hydrocarbon emissions, 132,200 tons of NO_x emissions, and 5,500 tons of directly emitted particulate matter (PM_{2.5}) emissions (USEPA 2008b).
- **Locomotive and Commercial Marine Rule (66 FR 5002).** Published May 2008, the controls apply to all types of locomotives, including line-haul, switch, and passenger, and all types of marine diesel engines below 30 liters per cylinder displacement, including commercial and recreational, propulsion and auxiliary. The near-term program, which started in 2009, includes new emission limits for existing locomotives and marine diesel engines that apply when they are remanufactured, and take effect as soon as certified remanufacture systems are available. The long-term emissions standards for newly built locomotives and marine diesel engines are based on the application of high-efficiency catalytic after-treatment technology. These standards take effect in 2015 for locomotives and in 2014 for marine diesel engines (USEPA 2008a).
- **Clean Air Nonroad Diesel Rule (65 FR 6698).** Published June 2004, this comprehensive national program regulates nonroad diesel engines and diesel fuel as a system. New engine standards took effect in the 2008 model year, phasing in over a number of years. These standards are based on the use of advanced exhaust emission control devices (USEPA 2004).
- **Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements (66 FR 5002).** Published January 2001, USEPA established a comprehensive national control program to regulate the heavy-duty vehicle and its fuel as a single system. As part of this program, new emission standards took effect in model year 2007, and apply to heavy-duty highway engines and vehicles. These standards are based on the use of high-efficiency catalytic exhaust emission control devices or comparably effective advanced technologies (USEPA 2001).
- **New Source Performance Standards (NSPS) for Stationary Engines.** Nonroad diesel engines are used in excavators and other construction equipment, farm tractors and other agricultural equipment, heavy forklifts, airport ground service equipment, and utility equipment such as generators, pumps, and compressors (USEPA 2023k). USEPA has adopted multiple tiers of emission standards, including reducing emissions from nonroad diesel engines by integrating engine and fuel controls as a system. To meet these Tier 4 emission standards, engine manufacturers will produce new engines with advanced emission control technologies (USEPA 2023k).

STATE

CALIFORNIA CLEAN AIR ACT

The California CAA of 1988 (Chapter 1568, Statutes of 1988) requires all air pollution control districts in the state to aim to achieve and maintain state ambient air quality standards for ozone, carbon monoxide, and nitrogen dioxide by the earliest practicable date and to develop plans and regulations specifying how the districts will meet this goal. There are no planning requirements for the state PM₁₀ standard. CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for meeting state requirements of the federal CAA, administrating the California CAA, and establishing the CAAQS. The California CAA, amended in 1992,

requires all AQMDs in the state to achieve and maintain the CAAQS. The CAAQS are generally stricter than national standards for the same pollutants, but there is no penalty for nonattainment. California has also established state standards for sulfates, hydrogen sulfide (H₂S), vinyl chloride, and visibility-reducing particles, for which there are no national standards (Sacramento Metropolitan Air Quality Management District 2023). As discussed in Section 3.3.1, *Environmental Setting*, under *California Ambient Air Quality Standards*, above, California has set standards for certain pollutants, such as particulate matter and ozone, which are more protective of public health than respective federal standards. California has also set standards for some pollutants that are not addressed by federal standards (see Table 3.3-5, *California Ambient Air Quality Standards*, for a summary of the state standards for ambient air quality).

CALIFORNIA HEALTH AND SAFETY CODE

Under the California Health and Safety Code, Division 26 (Air Resources), CARB is authorized to adopt regulations to protect public health and the environment through the reduction of TACs and other air pollutants with adverse health effects. CARB has promulgated several mobile and stationary source airborne toxic control measures (ATCMs) pursuant to this authority. For instance, effective as of July 2003, CARB approved an ATCM that limits school bus idling and idling at or near schools to only when necessary for safety or operational concerns (13 CCR Chapter 10, Section 2480). This ATCM is intended to reduce DPM and other TACs and air pollutants from heavy-duty motor vehicle exhaust. It applies to school buses, transit buses, school activity buses, youth buses, general public paratransit vehicles, and other commercial motor vehicles. This ATCM focuses on reducing public exposure to DPM and other TACs, particularly for children riding in and playing near school buses and other commercial motor vehicles, who are disproportionately exposed to pollutants from these sources. In addition, effective February 2005, CARB approved an ATCM to limit the idling of diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds, regardless of the state or country in which the vehicle is registered (13 CCR Chapter 10, Section 2485).

SENATE BILL 656 (CHAPTER 738, STATUTES OF 2003)

In 2003, the Legislature enacted Senate Bill (SB) 656 (Chapter 738, Statutes of 2003), codified as Health and Safety Code Section 39614, to reduce public exposure to PM₁₀ and PM_{2.5}. SB 656 required ARB, in consultation with local air pollution control and air quality management districts (air districts), to develop and adopt, by January 1, 2005, a list of the most readily available, feasible, and cost-effective control measures that could be employed by CARB and the air districts to reduce PM₁₀ and PM_{2.5} (collectively referred to as PM).

The legislation established a process for achieving near-term reductions in PM throughout California ahead of federally required deadlines for PM_{2.5} and provided new direction on PM reductions in those areas not subject to federal requirements for PM. Measures adopted as part of SB 656 complement and support those required for federal PM_{2.5} attainment plans, as well as for State ozone plans. This ensures continuing focus on PM reduction and progress towards attaining California's more health protective standards. This list of air district control measures was adopted by CARB on November 18, 2004. CARB also developed a list of State PM control measures for mobile and stationary sources, including measures planned for adoption as part of CARB's Diesel Risk Reduction Plan. The lists are at the following web site: <http://www.arb.ca.gov/pm/pmmeasures/pmmeasures.htm>.

TOXIC AIR CONTAMINANT IDENTIFICATION AND CONTROL ACT

The Toxic Air Contaminant Identification and Control Act (Assembly Bill [AB] 1807, Chapter 1047, Statutes of 1983) created the California Air Toxics Program in 1983. It established a two-step process of risk identification and risk

management to address potential health effects associated with public exposure to toxic substances in the air. In the risk identification step, CARB and the OEHHA determine if a substance should be formally identified, or “listed,” as a TAC in California. Since inception of the program, a number of such substances have been identified and listed. In 1993, legislative amendments were enacted for the program to identify the 189 federal hazardous air pollutants (HAPs) as TACs.

In the risk management step, CARB reviews emission sources of an identified TAC to determine whether regulatory action is needed to reduce the risk. Based on results of that review, CARB has promulgated a number of ATCMs, both for mobile and stationary sources. In 2004, CARB adopted an ATCM to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to DPM and other TACs. The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways, regardless of where they are registered. This measure does not allow diesel-fueled commercial vehicles to idle for more than 5 minutes at any given time. These diesel-related measures are critical in reducing the statewide cancer risk and creating healthier communities (CARB 2019).

CARB AIR TOXICS “HOT SPOTS” INFORMATION AND ASSESSMENT ACT

The California Air Toxics Program is supplemented by the Air Toxics “Hot Spots” program, which became law (AB 2588, Statutes of 1987) in 1987. In 1992, the AB 2588 program was amended by Senate Bill 1731 to require facilities that pose a significant health risk to the community to perform a risk reduction audit and reduce their emissions through implementation of a risk management plan. Under this program, which is required under the Air Toxics “Hot Spots” Information and Assessment Act (California Health and Safety Code Section 44363), facilities are required to report their air toxics emissions, assess health risks, and notify nearby residents and workers of significant risks when present (CARB 2019). In March 2015, the OEHHA adopted “The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments” in accordance with Health and Safety Code Section 44300. The Final Guidance Manual incorporates the scientific basis from three earlier developed Technical Support Documents to assess risk from exposure to facility emissions. The 2015 OEHHA Final Guidance has key changes including greater age sensitivity in particular for children, decreased exposure durations, and higher breathing rate profiles. Because cancer risk could be up to three times greater using this new guidance, it may result in greater mitigation requirements, more agency backlog, and increased difficulty in getting air permits. Regardless of the change in calculation methodology, actual emissions and cancer risk within South Coast Air Basin has declined by more than 50 percent since 2005 (OEHHA 2015).

CARB provides a computer program, the Hot Spots Analysis and Reporting Program (HARP), to assist in a coherent and consistent preparation of an HRA. HARP2, an update to HARP, was released in March 2015. HARP2 has a more refined risk characterization in HRA and CEQA documents and incorporates the 2015 OEHHA Final Guidance (CARB 2023c).

MULTIPLE AIR TOXICS EXPOSURE STUDY

To date, the most comprehensive study of air toxics in the SCAB is the Multiple Air Toxics Exposure Study V (MATES-V), conducted by SCAQMD in 2021.⁴ MATES combines monitoring of ambient air toxics, emissions inventories, and computer modeling to estimate the cancer risk from air pollution. The monitoring program measured numerous air pollutants, including both gases and particulates. SCAQMD’s MATES-IV found that the average cancer risk from air

⁴ In October 2023, SCAQMD initiated a multi-year public process to develop MATES VI, which is expected to be completed in years 2027-2028 (South Coast Air Quality Management District 2023d, 2023e).

pollution across the region declined from MATES-III in 2005 using similar methods of analysis. The risk reduction follows a trend of declining toxic emissions in the region since the first MATES study was conducted in 1987. MATES-IV found that mobile sources are responsible for 90 percent of the risk (SCAQMD 2015c).

The MATES-V study was performed as a follow up to the MATES-IV study, examining air toxics for a one-year period at ten fixed sites beginning in January 2019. This study included additional exposure pathways besides inhalation. The addition of non-inhalation pathways increases cancer risk by approximately 8 percent relative to inhalation-only studies. The level of air toxics continued to decline compared to previous MATES iterations, with levels ranging from 585 to 842 ppm. This corresponds to a reduction in cancer risk by approximately 40% from MATES-IV (published in 2015) and 84% from MATES-II (published in 2000) (SCAQMD 2021). According to MATES V, DPM is the largest contributor to overall air toxics cancer risk, as was the case in the prior MATES studies. The average levels of DPM, which is a State of California air toxic, continued to decline compared to previous MATES iterations with MATES V indicating 53 percent lower DPM levels compared to MATES IV and 86 percent lower levels since MATES II based on monitored data. Substantial decreases in DPM health impacts are expected within the next 5-10 years in the region as declining DPM levels are expected from continued regulatory and control strategy efforts by USEPA, CARB, and regional air districts to reduce DPM emissions, especially from mobile sources (SCAQMD 2021).

CALIFORNIA AIR RESOURCES BOARD MOBILE SOURCE PROGRAMS

EMISSION REDUCTION PLAN FOR PORTS AND GOODS MOVEMENT

CARB approved the 2006 Emission Reduction Plan for Ports and Goods Movement in California. The Plan is an essential component of California's effort to reduce community exposure to air pollution and to meet new federal air quality standards for ozone and PM_{2.5}. The plan's goals are to (CARB 2006b):

1. Reduce total statewide international and domestic goods movement emissions to the greatest extent possible and at least back to 2001 levels by year 2010.
2. Reduce the statewide DPM health risk from international and domestic goods movement 85 percent by year 2020.
3. Reduce NO_x emissions from international goods movement in the South Coast 30 percent from projected year 2015 levels, and 50 percent from projected year 2020 levels based on preliminary targets for attaining federal air quality standards.
4. Apply the emission reduction strategies for ports and goods movement statewide to aid all regions in attaining air quality standards.
5. Make every feasible effort to reduce localized risk in communities adjacent to goods movement facilities as expeditiously as possible.

GOODS MOVEMENT EMISSION REDUCTION PROGRAM

In June 2015, CARB released Proposition 1B: Goods Movement Emission Reduction Program Final 2015 Guidelines for Implementation. This program is designed to reduce diesel exhaust emissions from trucks, locomotives, ships, harbor craft, and cargo handling equipment. The guidelines shall include, at a minimum, all of the following (CARB 2015):

- An application process for funds, and any limits on administration costs.
- Requirements that local agencies identify the useful life of the project and project delivery milestones as part of the application process.

- Criteria for selection of local and State agency projects and equipment projects.
- Requirements for match funding.
- The method by which CARB will consider the air basin's status in achieving State and federal air quality standards.
- Requirements that grant agreements between CARB and local agencies, and interagency agreements with other State agencies, identify project milestones, and remedies for failure to meet project milestones.
- Accountability and auditing requirements, including provisions for Program reviews or fiscal audits of project expenditures and outcomes.

CARB Staff shall evaluate the progress of the Program and any changes needed to improve its effectiveness, plus advances in technology and updated equipment costs that create a need to revise the list of equipment project options. These guidelines are designed and intended to effectuate the provisions of SB 88, AB 201, and AB 892 (CARB 2015).

CARB SMALL OFF-ROAD ENGINE EXHAUST EMISSION STANDARDS

Small off-road engines include off-road spark-ignition engines that produce 19 kW gross power or less (less than 25 horsepower), including lawn and garden, industrial, logging, airport ground support, and commercial utility equipment; golf carts; and specialty vehicles. These emission standards apply to HC, NO_x, CO, and PM emissions with increasingly stricter standards from 1995 to 2013 (CARB 2023j).

CARB OFF-ROAD COMPRESSION-IGNITION DIESEL ENGINE EXHAUST EMISSION STANDARDS

These engines include new compression-ignition engines (a.k.a. diesel engines) that are found in a wide variety of off-road applications such as farming, construction, and industrial. Some familiar examples include tractors, excavators, dozers, scrapers, portable generators, transport refrigeration units (TRUs), irrigation pumps, welders, compressors, scrubbers, and sweepers. USEPA set Tier 4 construction engine standards in order to reduce NO_x and particulate matter emissions. CARB received authorization from USEPA on September 13, 2013, to enforce the Off-Road regulation's restrictions on fleets adding vehicles with older tier engines, and began enforcing on January 1, 2014 (CARB 2016). CARB is in the process of developing potential amendments to the off-road diesel engine standards, which are referred to as the Tier 5 rulemaking and aims to reduce NO_x, PM₁₀, and PM_{2.5} emissions from new, off-road compression-ignition engines compared to what is allowed by the current most stringent Tier 4 emissions standards. CARB plans to bring a rulemaking proposal in 2025 with implementation of the Tier 5 standards expected to begin in 2028 (CARB 2023). This category, however, does not include locomotives, commercial marine vessels, marine engines over 37 kW, or recreational vehicles (CARB 2023k).

CARB ON-ROAD HEAVY-DUTY DIESEL VEHICLES (IN-USE) REGULATION

This regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements beginning January 1, 2012. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating (GVWR) greater than 14,000 pounds. In 2014, to void the flexibility options provided in the 2014 amendments to the Truck and Bus regulation, John R. Lawson Rock and Oil of Fresno and the California Trucking Association sued CARB. On January 31, 2018, the court ruled to void the 2014 amendments (CARB 2023i).

CARB SMARTWAY/PHASE I HEAVY-DUTY VEHICLE GREENHOUSE GAS REGULATION

Refer to Section 3.8, Greenhouse Gas Emissions, for a detailed discussion of this regulation CARB Advanced Clean Cars II.

This regulation is intended to have all new passenger cars, trucks and SUVs sold in California to be zero emissions. Additionally, the regulation will rapidly scale down the emissions of these vehicle types starting with the 2026 model year through 2035. The regulations are two-pronged: First, it amends the Zero-emission Vehicle Regulation to require an increasing number of zero-emission vehicles, relying on currently available advanced vehicle technologies, like battery-electric, hydrogen fuel cell electric and plug-in hybrid electric-vehicles, to meet the air quality and climate change emissions standards. Second, the Low-emission Vehicle Regulations were amended to include increasingly stringent standards for gasoline cars and heavier passenger trucks.

A primary goal of the regulation is to substantially reduce air pollution that threatens public health and causes climate change. The regulation is estimated to further develop the ZEV market and provide public health benefits of at least \$12 billion over the life of the regulation (by reducing premature deaths, hospitalizations and lost workdays associated with air pollution exposure) (CARB. 2023I).

CARB ADVANCED CLEAN TRUCKS REGULATION

The purpose of this regulation is to accelerate a large-scale transition of zero-emission medium-and heavy-duty vehicles from Class 2b to Class 8. The regulation has two components including a manufacturer sales requirement and a reporting requirement. Manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines would be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 straight truck sales, and 40% of truck tractor sales.

Large employers including retailers, manufacturers, brokers and others are required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, are required to report about their existing fleet operations. This information will help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs (CARB 2023m).

CARB ADVANCED CLEAN FLEETS REGULATION

This regulation is part of the overall approach to accelerate a large-scale transition to zero-emission medium- and heavy-duty vehicles, working in conjunction with the Advanced Clean Trucks regulation. This regulation is expected to save \$26.5 billion in statewide health benefits from criteria pollutant emissions and a net cost savings of \$48 billion to fleets.

The regulation applies to fleets performing drayage operations, those owned by State, local, and federal government agencies, and high priority fleets. High priority fleets are entities that own, operate, or direct at least one vehicle in California, and that have either \$50 million or more in gross annual revenues, or that own, operate, or have common ownership or control of a total of 50 or more vehicles (excluding light-duty package delivery vehicles). The regulation affects medium- and heavy-duty on-road vehicles with a gross vehicle weight rating greater than 8,500 pounds, off-road yard tractors, and light-duty mail and package delivery vehicles. The Regulation will include milestones of ZEV fleets by groupings and year.

The primary goal of the ACF regulation is to accelerate the market for zero-emission trucks, vans, and buses by requiring fleets that are well suited for electrification, to transition to ZEVs where feasible. CARB was directed to ensure that fleets, businesses, and public entities that own or direct the operation of medium- and heavy-duty vehicles in California purchase and operate ZEVs to achieve a smooth transition to ZEV fleets by 2045 everywhere feasible, specifically to reach:

- 100 percent zero-emissions drayage trucks, last mile delivery, and government fleets by 2035
- 100 percent zero-emissions refuse trucks and local buses by 2040
- 100 percent zero-emissions capable utility fleets by 2040

Achieving these and other milestones will also contribute to meeting the goals in the Governor’s Executive Order N-79-20. The ACF regulation continues the progress toward meeting public health and climate goals by reducing emissions from the medium- and heavy-duty vehicles on California roads (CARB 2023n).

On July 6, 2023, CARB announced the Clean Truck Partnership today with the nation’s leading truck manufacturers and the Truck and Engine Manufacturers Association that advances the development of zero-emissions trucks for the commercial trucking industry, which includes flexibility for manufacturers to meet emissions requirements while still reaching the state’s climate and emission reduction goals. CARB has agreed to work collaboratively with manufacturers to provide reasonable lead time to meet CARB’s requirements and before imposing new regulations and to support the development of necessary ZEV infrastructure (CARB 2023o).

On August 30, 2023, CARB submitted the ACF regulatory package to the Office of California Office of Administrative Law that approved the rulemaking and filed with the Secretary of State. As such, the ACF regulation is effective October 1, 2023 (CARB 2023d).

CARB HEAVY DUTY-TRUCK INSPECTION AND MAINTENANCE PROGRAM⁵

Also known as the Clean Truck Check Program, this regulation was adopted in an ongoing effort to meet air quality standards by ensuring heavy-duty vehicle emissions control systems are properly operating throughout the life of

⁵ Note that CARB developed the EMFAC2021 and EMFAC2017 interim off-model adjustment factors to account for the emission benefits of California’s Heavy-Duty Vehicle Inspection and Maintenance Program (“HD I/M Program” or “program”) for use in transportation conformity determinations in California. The EMFAC adjustment factors are documented in CARB’s February 17, 2023, document titled EMFAC Off-Model Adjustment Factors to Account for Emission Benefits of the Heavy-Duty Vehicle Inspection and Maintenance Program. CARB reduced the emission reductions from the HD I/M Program by 50 percent for use in regional emissions analyses in transportation conformity determinations. CARB plans to incorporate the reductions associated with the HD I/M Program in the next version of EMFAC. Therefore, on April 10, 2023, CARB sent a letter requesting the USEPA to approve these EMFAC2021 and EMFAC2017 interim off-model adjustment factors before USEPA approves the SIP submissions that incorporate the HD I/M regulations and associated emission reductions from the implementation of the HD I/M Program. CARB developed these EMFAC adjustments to account for the HD I/M Program reducing mobile source emissions in California’s air quality plans to help California areas attain the NAAQS and the need for some MPOs to incorporate some of the emission reductions from the adopted HD I/M Program into their regional emissions analyses for transportation conformity determinations prior to CARB incorporating this regulation into the next version of EMFAC.

On May 26, 2023, USEPA approved the HD I/M adjustment factors, which assumed 50 percent of the program reductions to be appropriate (letter from Elizabeth Adams, USEPA to Michael Benjamin, CARB, dated May 26, 2023). Therefore, USEPA approved these EMFAC adjustment factors to be used in transportation conformity determinations that occur prior to USEPA’s adequacy finding or approval of motor vehicle emissions budgets into the SIP that incorporate the HD I/M Program reductions, and consistent with USEPA’s approval. USEPA approved the HD I/M adjustment factors for EMFAC2021 and EMFAC2017 for regional emissions analyses in transportation plan and TIP conformity determinations. However, these HD I/M adjustments were not approved by USEPA for CO, PM10, or PM2.5 hot-spot analysis for project-level conformity determinations.

the vehicle. The program sets regular testing requirements for all non-gasoline heavy-duty trucks operating in the State and will be tied to DMV registration (CARB 2023f).

DIESEL RISK REDUCTION PLAN

In August 1998, CARB identified particulate emissions from diesel-fueled engines (DPM) as toxic air contaminants, based on data linking DPM emissions to increased risks of lung cancer and respiratory disease. Following the identification process, CARB was required to determine if there was a need for further control, which led to creation of the Diesel Advisory Committee to assist in the development of a risk management guidance document and risk reduction plan. In September 2000, CARB adopted the Diesel Risk Reduction Plan, which recommends control measures to reduce the risks associated with DPM and achieve a goal of 75 percent DPM reduction by 2010 and 85 percent by 2020 (CARB 2000).

Specific statewide regulations designed to further reduce DPM emissions from diesel-fueled engines and vehicles will be evaluated and developed. The goal of these regulations is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce DPM emissions.

CALIFORNIA WELLNESS PLAN

The California Department of Public Health published a statewide Wellness Plan in 2014. The Plan acknowledges that many factors contribute to an individual's health. These factors include the physical environment (housing, neighborhood, healthy food access and environment), educational attainment and employment, economic status, social support, social norms and attitudes, culture, literacy, race/ethnicity. The physical environment is also an indicator of exposure to toxins and transportation where individuals are affected on a daily basis by the air quality of their surroundings (California Department of Public Health 2014).

CARB AIR QUALITY AND LAND USE HANDBOOK

In April 2005, CARB published the Air Quality and Land Use Handbook as an informational and advisory guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. Studies have shown that diesel exhaust and other cancer-causing chemicals emitted from cars and trucks are responsible for much of the overall cancer risk from airborne toxics in California. Reducing diesel particulate emissions is one of CARB's highest public health priorities and the focus of a comprehensive statewide control program that is reducing DPM emissions each year. This document highlights the potential health impacts associated with proximity to air pollution sources so planners explicitly consider this issue in planning processes. The Air Quality and Land Use Handbook includes advisories on where to site new sensitive land uses. Regarding freeways and high-traffic roads, CARB states, "[A]void siting new sensitive land uses within 500 feet of a freeway urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day" (CARB 2005). In 2017, CARB identified and published strategies that planners and other land use decision-makers could implement locally and in the near-term to reduce air pollution exposure near high-volume roadways from all sources, including cars and trucks, as the state pursues infill development while also protecting public health (CARB 2017a).

ASSEMBLY BILL 617

AB 617 (California Health and Safety Code section 40920.6 et seq.) establishes a first-of-its-kind statewide effort for identifying community concerns and implementing community air monitoring and community emissions reduction programs. AB 617 emphasizes the protection of disadvantaged communities burdened

disproportionately by harmful effects of air pollution. As part of AB 617, CARB has implemented the Community Air Protection Program (CAPP) to reduce air pollution and improve public health in communities experiencing disproportionate burdens from exposure to air pollution. In September 2018, CARB selected 10 initial communities statewide to be designated for the development of an air quality monitoring plan or a community emissions reduction program (CERP). Additional communities have been added to the CAPP since 2018. Within the SCAG region, the designated AB 617 communities include:

- Calexico, El Centro, Heber
- East Los Angeles, Boyle Heights, West Commerce
- Eastern Coachella Valley
- North Imperial Phase 1
- San Bernardino, Muscoy
- South East Los Angeles
- South Los Angeles
- Wilmington, West Long Beach, Carson

LOCAL

The SCAG region is comprised of four air basins and five air districts. The four air basins are SCAB, MDAB, SSAB, and the Ventura County portion of SCCAB. The five air districts are MDAQMD, AVAQMD, VCAPCD, SCAQMD, and ICAPCD. The SCAQMD region is home to more than 17 million people—the majority of the approximately 19 million people in the SCAG region (SCAQMD 2023a).

MDAQMD FEDERAL 75 PPB OZONE ATTAINMENT PLAN (WESTERN MOJAVE DESERT NONATTAINMENT AREA)

The Western Mojave Desert nonattainment area (as defined in 40 CFR 81.305) was designated nonattainment for the NAAQS for ozone by USEPA effective on July 20, 2012. The MDAQMD has experienced ambient ozone concentrations in excess of the 8-hour ozone NAAQS. This plan (1) demonstrates that the MDAQMD will meet the primary required Federal ozone planning milestone, attainment of the 75 parts per billion (ppb) 8-hour ozone NAAQS, by July 2027; (2) presents the progress the MDAQMD will make towards meeting all required ozone planning milestones; and (3) discusses the 2015 70 ppb 8-hour ozone NAAQS, preparatory to an expected non-attainment designation for the new NAAQS (MDAQMD 2016b).⁶

MDAQMD FEDERAL 70 PPB OZONE ATTAINMENT PLAN (WESTERN MOJAVE DESERT NONATTAINMENT AREA)

The Western Mojave Desert nonattainment area (as defined in 40 CFR 81.305) was designated nonattainment for the NAAQS for ozone by USEPA effective on October 26, 2015. The MDAQMD has experienced ambient ozone concentrations in excess of the 8-hour ozone NAAQS. This document: (1) demonstrates that the MDAQMD will meet the primary required Federal ozone planning milestone, attainment of the 70 ppb 8-hour ozone NAAQS, by August 2033; (2) presents the progress the MDAQMD will make towards meeting all required ozone planning

⁶ Note that the CARB 2018 Updates to the California SIP was reviewed; it provides reference to MDAQMD's 2016 Plan and discusses emission inventories, but it does provide expanded regulatory framework.

milestones; and (3) discusses the 2015 70 ppb 8-hour ozone NAAQS, preparatory to an expected non-attainment designation for the new NAAQS (MDAQMD 2023a).

AVAQMD FEDERAL 75 PPB OZONE ATTAINMENT PLAN (2017)

The AVAQMD has adopted a single attainment plan for ozone. The AVAQMD Federal 8-hour Ozone Attainment Plan, adopted in March 2017, demonstrates that the AVAQMD will meet the primary required federal ozone planning milestones by June 2027, presents the progress the AVAQMD will make towards meeting all required ozone planning milestones, and discusses the 75 part per million 8-hour ozone NAAQS (AVAQMD 2017).

AVAQMD FEDERAL 70 PPB OZONE ATTAINMENT PLAN (2023)

The AVAQMD Federal 2015 8-hour Ozone Attainment Plan included with MDAQMD's 2015 8-hour Ozone Attainment Plan as part of the Western Mojave Desert nonattainment area air plan, submitted to CARB in January 2023, demonstrates that the AVAQMD will meet the primary required federal ozone planning milestones by August 2023, presents the progress the AVAQMD will make towards meeting all required ozone planning milestones, and discusses the 70 part per million 8-hour ozone NAAQS (AVAQMD 2023).

VCAPCD AIR QUALITY MANAGEMENT PLAN

In 2022, the VCAPCD proposed the 2022 Ventura County AQMP. Photochemical air quality modeling performed indicated that Ventura County will attain the 2015 federal 8-hour ozone standard by 2026 using local, state, and federal clean air programs. The 2016 Ventura County AQMP projected attainment of the 2008 federal 8-hour ozone standard by 2020 (VCAPCD 2016, 2017). The 2022 AQMP presents (1) a strategy to attain the 2015 federal 8-hour ozone standard; (2) attainment demonstration for the federal 8-hour ozone standard; and (3) reasonable further progress demonstration for the federal 8-hour ozone standard (VCAPCD 2022).

SCAQMD 2022 AIR QUALITY MANAGEMENT PLAN

The 2022 AQMP seeks to achieve multiple goals in partnership with other entities promoting reductions in criteria pollutant, greenhouse gases, and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The 2022 AQMP includes the integrated strategies and measures needed to meet the NAAQS. The South Coast Air Basin is classified as an "extreme" nonattainment area and the Coachella Valley is classified as a "severe-15" nonattainment area for the 2015 Ozone NAAQS. The 2022 AQMP was developed to address the requirements for meeting this standard and other issues like windblown dust. The 2022 AQMP was adopted December 2, 2022, by the South Coast AQMD Governing Board (SCAQMD 2022a).

ICAPCD AIR PLANS

At a public meeting held on May 25, 2018, CARB approved the Imperial County 2018 Annual PM_{2.5} SIP. At a public meeting held on November 13, 2018, the Imperial County 2018 Redesignation Request and Maintenance Plan for PM₁₀. SIPs in the region are utilized to demonstrate that the County is in attainment of previous PM goals, as well as to set new emissions reduction guidelines, goals, and methodologies (CARB 2023p). In response to court decisions, some elements included in the Imperial County 2017 State Implementation Plan for the 2008 8-hour Ozone Standard required updates. CARB staff prepared the 2018 Updates to the California State Implementation Plan (2018 SIP Update) to update SIP elements for nonattainment areas throughout the State as needed. CARB adopted the 2018 SIP Update on October 25, 2018 (CARB 2023q). Fugitive Dust Regulations: SCAQMD, AVAQMD, and MDAQMD Rule 403; VCAPCD Rule 55, Fugitive Dust; ICAPCD Rule 800, ICAPCD Rule 801

The SCAQMD, AVAQMD, and MDAQMD have adopted Rule 403, Fugitive Dust, which requires the implementation of best available fugitive dust control measures during construction and operational activities capable of generating fugitive dust emissions from on-site earth-moving activities, construction/demolition activities, and mobile equipment traveling on paved and unpaved roads (SCAQMD 2005). Similarly, VCAPCD has adopted Rule 55, Fugitive Dust (VCAPCD 2008a), and ICAPCD has adopted Rule 800, General Requirements for Control of Fine Particulate Matter (PM₁₀) (ICAPCD 2012), and Rule 801, Construction and Earthmoving Activities, to reduce fugitive dust (ICAPCD 2005). Windblown dust is also an air quality concern and results from agricultural operations, vehicle travel on unpaved surfaces, grading of previously covered or vegetated areas without reapplication of cover, vegetation or dust suppressants, re-entrained dust from previously settled dust on solar panels, particularly at solar power facilities located in rural, desert, or other locations with unpaved surfaces, and other similar types of operational activities.

SCAQMD, AVAQMD RULE 1401; MDAQMD RULE 1320; VCAPCD RULE 36; ICAPCD RULE 207 AND SCAQMD, AVAQMD RULE 1402; MDAQMD RULE 1520; VCAPCD RULE 73; ICAPCD RULE 403

The SCAQMD has adopted two rules for TACs to limit cancer and non-cancer health risks from facilities located within its jurisdiction. Rule 1401, New Source Review of Toxic Air Contaminants, regulates new or modified facilities (SCAQMD 2017b); and Rule 1402, Control of Toxic Air Contaminants from Existing Sources (SCAQMD 2016b), regulates facilities that are already in operation. Rule 1402 incorporates requirements of the AB 2588 program, including implementation of risk reduction plans for significant risk facilities. In 2017, SCAQMD revised Rule 1401 and 1402 to include more equipment types and industry categories. Under the revised Rule 1401, no permit would be issued for new and modified equipment unless the cancer risk is less than ten in a million using Toxics Best Available Control Technology (TBACT) or less than one in a million without TBACT or if near a school. For Rule 1402, existing facilities under AB 2588 must reduce facility-wide risk if maximum individual cancer risk is greater than 25 in a million. AVAQMD, MDAQMD, VCAPCD, and ICAPCD have adopted similar rules to limit health risks from toxic air contaminants from new, modified, and existing sources (AVAQMD 2002, 2006; MDAQMD 2001, 2021; VCAPCD 1998, 2008b; ICAPCD 2004, 2018).

SCAQMD LOCALIZED SIGNIFICANCE THRESHOLDS

The SCAQMD has published a guidance document called the *Final Localized Significance Threshold Methodology for CEQA evaluations* that is intended to provide guidance when evaluating the localized impacts from mass emissions during construction (SCAQMD 2008). The SCAQMD adopted additional guidance regarding PM_{2.5} emissions in a document called *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM_{2.5} Significance Thresholds* (SCAQMD 2006). This latter document has been incorporated by the SCAQMD into its CEQA significance thresholds and *Final Localized Significance Threshold Methodology*.

3.3.4 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to air quality if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Conflict with or obstruct implementation of the applicable air quality plan;

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

AIR QUALITY THRESHOLDS FOR CRITERIA AIR POLLUTANTS

As previously discussed, the SCAG region contains all of the following air districts: SCAQMD, VCAPCD, MDAQMD, AVAQMD, and ICAPCD. Per CEQA Guidelines Section 15064.7 each air district is encouraged to develop and publish significance thresholds that the agency can use in the determination of the significance of environmental effects. Each of the air district’s significance thresholds are discussed below (CEQA Guidelines Section 15064.7). These thresholds are generally recommended by each air district to be used to determine if further discussion of air quality impacts is needed in an environmental document. If emissions of criteria pollutants are below these levels, then air quality impacts are generally considered to be less than significant.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

SCAQMD prepared air quality significance thresholds to compare the mass daily emissions in pounds per day (lbs/day) from construction and operation for NOx, VOC, PM10, PM2.5, SOx, CO, and Lead. SCAQMD’s significance thresholds are summarized in **Table 3.3-9, SCAQMD Air Quality CEQA Significance Thresholds**.

TABLE 3.3-9 SCAQMD Air Quality CEQA Significance Thresholds

POLLUTANT	CONSTRUCTION (LBS/DAY)	OPERATION (LBS/DAY)
NOx	100	55
VOC	75	55
PM10	150	150
PM2.5	55	55
SOx	150	150
CO	550	550
Lead	3	3

Source: SCAQMD 2023b

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT THRESHOLDS

VCAPCD published the Ventura County Air Quality Assessment Guidelines in October 2003 that include the VCAPCD recommended significance thresholds. According to the Guidelines, ROG and NOx emissions have a threshold of 5 lbs/day in the Ojai Planning Area and 25 lbs/day in the remainder of Ventura County.⁷ For all other criteria air pollutants, the District uses the ambient air quality standards as thresholds (VCAPCD 2003).

⁷ The City of Simi Valley, within the VCAPCD, uses a threshold of 13.7 tons/year for ROG and NOx emissions.

MOJAVE DESERT AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

MDAQMD published the MDAQMD CEQA and Federal Conformity Guidelines in August 2016 that includes the MDAQMD recommended air quality significance thresholds for CO, NOx, VOC, SOx, PM10, PM2.5, H2S, and Lead in mass daily and annual emissions. The MDAQMD and AVAQMD have set the same annual and daily thresholds, which are summarized in **Table 3.3-10, MDAQMD and AVAQMD Air Quality CEQA Significance Thresholds** (MDAQMD. 2016b).

TABLE 3.3-10 MDAQMD and AVAQMD Air Quality CEQA Significance Thresholds

POLLUTANT	ANNUAL THRESHOLD (TONS)	DAILY THRESHOLD (POUNDS)
CO	100	548
NOx	25	137
VOC	25	137
SOx	25	137
PM10	15	82
PM2.5	12	65
H ₂ S	10	54
Lead	0.6	3

Sources: MDAQMD 2016a; AVAQMD 2016

ANTELOPE VALLEY AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS

AVAQMD published the AVAQMD CEQA and Federal Conformity Guidelines in August 2016 that includes the AVAQMD recommended air quality significance thresholds for CO, NOx, VOC, SOx, PM10, PM2.5, H2S, and Lead in mass daily and annual emissions (AVAQMD 2016). Table 3.3-10 summarizes the air quality thresholds for both the AVAQMD and MDAQMD, as their annual and daily thresholds are the same.

IMPERIAL COUNTY AIR POLLUTION CONTROL DISTRICT THRESHOLDS

ICAPCD prepared their final CEQA Air Quality Handbook in December 2017, which includes operational air quality thresholds for Tier I and Tier II projects.⁸ Tier I projects do not exceed thresholds and, as a result, would not be required to prepare a Comprehensive Air Quality Analysis as emissions would be less than significant. Tier II projects exceed these thresholds and would be required to implement all standard and discretionary mitigation measures and must, at a minimum, prepare a Comprehensive Air Quality Analysis (ICAPCD 2017a). **Table 3.3-11, ICAPCD Operational Air Quality CEQA Significance Thresholds**, summarizes the District’s operational thresholds.

⁸ ICAPCD recommends that individual projects qualitatively address construction emissions and are required to implement the District’s standard mitigation measures for construction equipment and fugitive PM2.5.

TABLE 3.3-11 ICAPCD Operational Air Quality CEQA Significance Thresholds

POLLUTANT	DAILY THRESHOLD
NOx and ROG	137 lbs/day
PM10 and SOx	150 lbs/day
CO and PM2.5	550 lbs/day

Source: ICAPCD 2017a

AIR QUALITY THRESHOLD FOR TOXIC AIR CONTAMINANTS

TACs are hazardous air pollutants that may reasonably cause cancer, development effects, or other serious or irreversible acute or chronic health effects in humans. In the analysis below, DPM, a type of TAC, is evaluated to determine the cancer risk posed to sensitive groups in the SCAG region. The SCAQMD (2023b), VCAPCD (2003), MDAQMD (2016a), and AVAQMD (2016) have all recommended a maximum incremental cancer risk CEQA significance threshold of 10 in 1 million.⁹ As a result, if an individual’s probability of contracting cancer over their lifetime increases by 10 or more chances in 1 million as a result of a project’s emissions, the project would have a significant impact on health risk.¹⁰

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan’s vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions.

This section discusses the potential impacts of Connect SoCal 2024 on air quality, identifies mitigation measures for potential impacts, and evaluates residual impacts in accordance with CEQA Guidelines Appendix G. Air quality within the SCAG region was evaluated at a programmatic level of detail, in relation to the AQMPs for the five air quality districts and the general plans of the six counties and 191 cities within the SCAG region, a review of published and unpublished literature germane to the SCAG region, as well as a review of the previously certified PEIR for the 2020-2045 RTP/SCS (SCAG 2020a). The analysis of air quality considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

The CEQA significance determination for Plan’s air quality impacts is based on a comparison between future (2050) with the Plan and the 2019 actual baseline (e.g., existing conditions). The comparison of air quality impacts in the future with the Plan as compared to future with no Plan is included in Chapter 4, *Alternatives*, of this PEIR.

⁹ ICAPCD does not have a quantified cancer risk threshold, instead individual projects that meet Tier II would be required to prepare a health risk assessment which should be prepared in consultation of agency staff.

¹⁰ See e.g., SCAQMD 2023b.

CONSTRUCTION

Implementation of Connect SoCal 2024 could result in the construction of various transportation projects and land use projects over the lifetime of the Plan. Construction emissions associated with each individual project will generally be short-term, temporary, and are limited to the project construction phase (although some project construction phases can extend for multiple years). The sources associated with these emissions include construction equipment, employee and vendor vehicles (e.g., on-road trucks for construction material delivery), demolition, grading and other ground-disturbing activities, application of paint and other coatings, paving, among others. Since descriptions, locations, and scale of future activities involving construction of individual projects are unknown at this time, it is not possible and would be speculative to quantify specific project-level construction emissions. Additionally, SCAG has no land use decision-making or implementation authority over individually proposed transportation or potential land use projects.

However, to illustrate the potential magnitude of air quality impacts from a range of potential construction scenarios, emissions were calculated for four hypothetical template scenarios for four differently-sized individual land use projects in six locations that represent each County in SCAG's jurisdiction¹¹ based on typical assumptions of construction activities using the California Emissions Estimator Model (CalEEMod) version 2022.1.1¹² and the CARB EMFAC2021 model. See **Appendix B-1** for the model output files. Four construction scenarios were used to demonstrate potentially significant construction air quality impacts in the absence of a known specific construction location and scale.¹³ (The scenarios would be the same regardless of the Plan.) The four scenarios are as follows:

- **Low-end scenario (LE scenario):** expected less than significant impacts without mitigation; crew of 24 workers, 13 pieces of heavy-duty off-road construction equipment, and 50 one-way truck trips per day.
- **Low-mid-range scenario (LM scenario):** expected potentially significant impacts but mitigated to less than significant impacts with some typical mitigation; crew of 53 workers, 15 pieces of heavy-duty off-road construction equipment, and 150 truck one-way truck trips per day.
- **High-mid-range scenario (HM scenario):** expected significant impacts but mitigated to less than significant impacts with substantial mitigation; crew of 160 workers, 19 pieces of heavy-duty off-road construction equipment, and 500 truck trips per day.
- **High-end scenario (HE scenario):** expected significant impacts and may result in potentially significant and unavoidable impacts; crew of 237 workers, 21 pieces of heavy-duty off-road construction equipment, and 750 truck trips per day.

These four scenarios were analyzed for four analysis years: 2025, 2032, 2037, and 2050. The year 2025 corresponds to the NAAQS attainment year for the 2012 annual PM_{2.5} federal standard (for serious nonattainment designation), the years 2032 and 2037 correspond to attainment years for the 2008 and 2015 8-hour ozone federal standards (for the extreme nonattainment designation), and the year 2050 is the Connect SoCal 2024 horizon year. It is important to note that overlapping construction activities among the four scenarios were not assumed as these scenarios served as examples of singular projects. It was also assumed that none of four scenarios would encounter contaminated soil and that in-situ soil remediation, removal, or off-site soil disposal would not be

¹¹ Locations represent each County within SCAG's jurisdiction and are only used to generate area-specific emission factors which include mobile fleet and VOC regulations that would apply anywhere in the respective County.

¹² The most recent version of CalEEMod will be used at the time modeling commences.

¹³ CalEEMod 2022.1.1 - Appendix G, Default Data Tables, used to create construction scenario assumptions based on the 1-acre, 3-acre, 10-acre and 15-acre site sizes for equipment and worker values. Truck trip values based on 125 cubic yards/day/acre of demolition debris, 75 cubic yards/day/acre of site preparation debris, and 200 cubic yards/day/acre of soil hauling.

needed before construction began. However, this section discusses the potential regional air quality impacts from overlapping construction emissions from individual projects with operational emissions.

OPERATIONS

This analysis focuses on air pollution from on-road motor vehicles in two perspectives: daily emissions and pollutant concentrations. The analysis is based upon air quality modeling, performed by SCAG, using EMFAC2021. Air quality modeling that produces criteria pollutant emissions for the SCAG region and by county is based on SCAG's activity-based transportation modeling and networks built for the existing conditions (2019) and the Plan.

The methodology for determining the level of significance of air quality impacts from operations compares existing emissions to the expected future emissions with the Plan, as required in CEQA Guidelines Section 15126.2(a). The criteria above were applied to compare current conditions in year 2019, year 2030, year 2040 and to the 2050 Plan conditions. Analysis of the potential air quality impacts of the Plan was conducted based on SCAG's activity-based Regional Travel Demand Model, evaluation of relevant AQMPs/SIPs, and a Mobile source HRA to determine if there will be a significant impact. NO₂ air dispersion modeling and nitrogen deposition modeling were conducted primarily for disclosure purposes and to inform the discussion of health effects and potential biological resources impacts.

In accordance with the *Sierra Club v. County of Fresno* (i.e., *Friant Ranch*) decision, when air quality impacts are found to be significant, the health implications of the significant emissions should be disclosed. In an absence of technical guidance on how analyze and disclose the health implications in CEQA from all five air districts in the SCAG region, this is achieved for particulate matter by a quantitative health risk assessment in this PEIR. For ozone and its precursors (NO_x and VOC), there in an absence of CEQA guidance from all five air districts in the SCAG region on how to perform this type of analysis quantitatively. Therefore, SCAG is analyzing the health implications of ozone emissions both qualitatively and quantitatively by using NO₂ as a proxy.

The NO₂ concentrations, nitrogen deposition and cancer risk analyses were performed quantitatively using the USEPA's AERMOD dispersion model and the Hot Spots Analysis and Reporting Program Version 2 (HARP2) Risk Assessment Standalone Tool (RAST) model. The HRA analysis is consistent with the 2015 guidance provided by OEHHA for Human Health Risk Assessment (HHRA). The AERMOD concentration algorithms were used for the NO₂ dispersion analysis and the HRA, and the wet and dry gaseous deposition algorithms were used for the nitrogen deposition analysis. Emissions of NO_x, NH₃, and DPM were estimated from CARB's EMFAC2021 model to be used in these analyses. EMFAC2021 was developed to estimate emissions from mobile sources and includes County-specific data, such as fleet mix in order to estimate criteria air pollutants. See Appendix B-2 for more detail.

In *California Building Industry Association (CBIA) vs. Bay Area Air Quality Management District (BAAQMD)*, the California Supreme Court ruled that agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents unless the proposed project risks exacerbating those environmental hazards or conditions that already exist.¹⁴ Therefore, emissions from the existing transportation network, including freeways, are generally not considered impacts under CEQA unless the project

¹⁴ See *Cal. Building Industry Assn. v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369; see also *Cal. Building Industry Assn. v. Bay Area Air Quality Management District* (2016) 2 Cal.App.5th 1067.

exacerbates the existing environmental conditions.¹⁵ Since Connect SoCal 2024 includes transportation projects, including freeway improvements, that could occur within 500 feet of sensitive receptors (thereby exacerbating an existing condition), this section analyzes the risk posed from existing freeways on sensitive receptors.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies, some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). As discussed in Section 3.0, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT AQ-1 **Conflict with or obstruct implementation of the applicable air quality plan.**

Significant and Unavoidable Impact (Except for Plan's Consistency with Federal Transportation Conformity Requirements) – Mitigation Required

COMPLIANCE WITH FEDERAL TRANSPORTATION CONFORMITY REQUIREMENTS

Connect SoCal 2024 is required to meet the federal transportation conformity requirements in order for the region to move forward with critical transportation and transit projects. Transportation conformity is required under the federal CAA Section 176(c) to ensure that federally supported transportation activities such as transportation plans, programs, investments, projects (i.e., highway, highway safety, transit, and other surface transportation projects) conform to or are consistent with the purpose of the applicable AQMP or SIP.

Transportation conformity for the purpose of the air quality plan or SIP means that federally supported transportation plans, programs, and projects are required to not create new violation of the federal air quality standards, worsen the existing violation, or delay the timely attainment of the applicable federal air quality standards. The Transportation Conformity Regulations apply nationwide to areas that are designated nonattainment, and those re-designated to attainment after 1990, maintenance areas, with plans developed for the specific transportation-related criteria air pollutants (40 CFR Section 93.102).

The federal CAA establishes air quality standards and planning requirements for various criteria air pollutants. As described in the Regulatory Framework, when a region is in nonattainment for any of the six criteria air pollutants relative to the applicable NAAQS, the federal CAA requires states to develop SIPs to achieve the federal standard. The AQMPs are required as part of the SIP. Within the SCAG region, the 8-hour federal ozone standards are designated as nonattainment for all six counties. San Bernardino, Riverside, Orange, Los Angeles, and Imperial Counties are all designated as nonattainment for PM_{2.5}. Additionally, San Bernardino, Riverside, and Imperial

¹⁵ Note that as discussed in Section 3.15.3, Public Services – Schools, CEQA review of school construction generally does require an evaluation of the effects of existing air quality exposure on pupils, and to the extent the health risk is unacceptable, the school would not be built. CEQA also provides limited protection and requires analysis of impacts of the existing environment on certain housing development projects exercising exemptions under Pub. Res. Code Sections 21159.21(f), (h), 21159.22(a), (b)(3), 21159.23 (a)(2)(A), 21159.24(a)(1), (3), and 21155.1(a)(4), (6).

Counties are designated as nonattainment for PM10. As a result, all the SIPs in the SCAG region focus on reducing emissions of ozone and its precursors such as reactive organic gases and particulate matter pollution. The following air quality plans are applicable to Connect SoCal 2024: 2022 SCAQMD AQMP, AVAQMD Federal 75 ppb Ozone Attainment Plan (2017), AVAQMD Federal 70 ppb Ozone Attainment Plan (2023), MDAQMD Federal 75 ppb Ozone Attainment Plan (2017), MDAQMD Federal 70 ppb Ozone Attainment Plan (2023), 2022 Ventura County AQMP, and Imperial County 2018 Annual PM2.5 State Implementation Plan.

The goals of the AQMPs and SIPs are to establish a strategy for achieving the standards by a set date by listing all feasible control measures, including TCMs. These control measures help advance the attainment date and are financially, economically, and socially feasible. As standards become more stringent over time, achieving the standards becomes a moving target that the air quality districts, and air-related plans must continue to chase.

SCAG coordinates with air districts in the region to ensure that air quality planning and AQMPs (and air pollution control plans) are consistent and comprehensively address air pollution from all sources (as appropriate) in the SCAG region. Upon approval by the USEPA, the motor vehicle emissions budgets in the applicable AQMPs/SIPs will become the functioning emission caps for transportation conformity for future RTPs, Federal Transportation Improvement Programs, and amendments or updates to such plans/programs. Pursuant to the California Health and Safety Code, SCAG is responsible for preparing a portion of air plans such as the 2022 AQMP for the South Coast Air Basin relating to the RTP/SCS and TCMs, which is commonly known as "Appendix IV-C". In addition to writing a portion of the SCAQMD's 2022 AQMP on the region's RTP/SCS and TCMs as they related to air quality, SCAG's role in SCAQMD's air plan development process included providing the socio-economic growth forecast and regional transportation demand model output data to the SCAQMD for use in estimating and forecasting emission inventories and airshed modeling; and vehicle activity data to CARB for use in developing on-road emissions. SCAG provided this data to the respective agencies.

Furthermore, SCAG's Transportation Conformity Working Group (TCWG) serves as a mechanism for interagency consultation for RTP/SCS issues between representatives from SCAG, federal and state agencies such as USEPA, Federal Highway Administration (FHWA), Federal Transit Administration (FTA), California Department of Transportation, CARB, and local air quality and transportation agencies in the SCAG region. Connect SoCal 2024, including the associated transportation conformity analysis were discussed at the monthly meetings of the TCWG for interagency consultation (SCAG 2023c).

Based on the required transportation conformity analysis conducted for Connect SoCal 2024, the Plan demonstrates positive transportation conformity. Specifically, the Plan passes the four required transportation conformity tests, namely: (1) regional emissions analysis [i.e., the Plan do not exceed any applicable emissions caps for all applicable air pollutants; for all applicable milestone, attainment, and planning horizon years; and in all nonattainment and maintenance areas within the SCAG region set forth in existing AQMPs/SIPs]; (2) fiscal constraint [i.e., the Plan demonstrates financial constraint in the financial plan by identifying all transportation revenues including local, state, and federal sources available to meet the region's programming totals]; (3) timely implementation of TCMs [i.e., all TCM projects and programs in the Plan were given funding priority, are expected to be implemented on schedule, and in the case of any delays, any obstacles to implementation have been or are being overcome], and (4) interagency consultation and public involvement [i.e., the Plan follows the strategies in SCAG's Public Participation Plan and conducts interagency consultation on the transportation conformity analysis for the Plan with SCAG's TCWG]. The transportation conformity determination for Connect SoCal 2024 is anticipated to receive final federal approval from FHWA/FTA in June 2024. See the Transportation Conformity Analysis Technical Report of Connect SoCal 2024 for more discussion. Therefore, the Plan is not expected to conflict with

or obstruct implementation of the existing applicable air quality plans for federal transportation conformity purposes.

COMPLIANCE WITH APPLICABLE AIR QUALITY PLAN FOR ALL OTHER PURPOSES

Connect SoCal 2024 includes land use strategies integrated with transportation strategies and investments. With respect to achieving emission reductions, the Plan would reduce emissions air pollutants and toxic air emissions as it has a greater emphasis on compact development, additional transportation strategies including those more integrated with supporting active transportation, additional investments for transit and passenger rail, and a greater emphasis improving the public health and ensuring the quality of life (as discussed in Chapter 2, *Project Description*). This is evident by the Plan's transportation project types that allocate funding and planning efforts on trail access, regional greenway network, regional and local bikeway network, and pedestrian improvements by using a "complete streets" approach and "15-minute communities"; transit (rail, bus) improvements and new facilities; dedicated lanes; mobility hubs; universal basic mobility policies and strategies; rideshare/vanpool programs; high-occupancy vehicle (HOV) lanes; traffic calming and signal improvements; and streetscape/landscape projects. Implementation of land use strategies in the Plan could reduce emissions in both mobile and stationary sources by increasing density and reducing VMT per capita (see Section 3.8, *Greenhouse Gas Emissions*, for additional discussion on per capita VMT reduction). Additionally, land use strategies in the Plan seek to integrate and balance the region's strategic transportation investments and land use choices and are coordinated with the committed and projected transportation investments in the region that emphasize system preservation and enhancement, active transportation, and land use integration. These efforts are supportive of goals of air quality to reduce air pollution and improve public health and welfare. Nonetheless, given the geographic size and long-term nature of the Plan, complexity of air quality conditions and planning challenges, and potential for unforeseen circumstances to occur through the 2050 Plan horizon, it is possible that emissions and incidental air pollution events could result in substantial air quality impacts that could collectively constitute a violation of air quality standards within the respective air basins in the region and conflict with the applicable air quality plan.

As discussed above, at the regional level, the Plan meets the federal transportation conformity requirements and therefore, would not conflict with or obstruct applicable AQMPs, local SIPs, and air plans. However, federally supported individual transportation projects are required to perform their own project-level conformity. In PM_{2.5} and/or PM₁₀ nonattainment and maintenance areas within the SCAG region (except the Ventura County portion of the South Central Coast Air Basin), SCAG's TCWG determines if a federally supported transportation or transit project is considered a "Project of Air Quality Concern" (POAQC) (SCAG 2023d). For example, if a new highway project included in the Plan's Project List involves significant levels of diesel vehicle traffic, it could be determined by the TCWG as a POAQC that may need a project-level PM hot spot analysis (40 CFR 93.123(b)). PM hot spot analyses are required only for projects of local air quality concerns. As such, the potential exists that individual transportation projects in the Plan could result in conflicts with or obstruction of implementation of applicable air quality plans. Therefore, impacts with regards to project-level conformity are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GHG-1 and SMM-GHG-2.

SMM-AQ-1 SCAG shall continue to support and provide information on regional air quality planning and related issue areas in the region. SCAG staff shall also continue to work with the U.S. Environmental Protection Agency, California Air Resources Board, and the air districts within the SCAG region and provide updates to relevant stakeholders on regional air quality planning and related issue areas through regional collaboration forums such as SCAG's Transportation Conformity Working Group.

PROJECT-LEVEL MITIGATION MEASURES

PMM-AQ-1 In accordance with provisions of sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to violating air quality standards. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a) Minimize land disturbance.
- b) Suspend grading and earth moving when wind gusts exceed 25 miles per hour unless the soil is wet enough to prevent dust plumes.
- c) Cover trucks when hauling dirt.
- d) Stabilize the surface of dirt piles if not removed immediately.
- e) Limit vehicular paths on unpaved surfaces and stabilize any temporary roads.
- f) Minimize unnecessary vehicular and machinery activities.
- g) Sweep paved streets at least once per day where there is evidence of dirt that has been carried on to the roadway.
- h) Revegetate disturbed land, including vehicular paths created during construction to avoid future off-road vehicular activities.
- i) On Caltrans projects, Caltrans Standard Specifications 10-Dust Control, 17-Watering, and 18-Dust Palliative shall be incorporated into project specifications.
- j) Assemble a comprehensive inventory list (i.e., make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower [hp] and greater) that could be used an aggregate of 40 or more hours for the construction project. Prepare a plan for approval by the applicable air district demonstrating achievement of the applicable percent reduction for a CARB-approved fleet.
- k) Ensure that all construction equipment is properly tuned and maintained.
- l) Minimize idling time to 5 minutes—saves fuel and reduces emissions.
- m) Provide an operational water truck on-site at all times. Use watering trucks to minimize dust; watering should be sufficient to confine dust plumes to the project work areas. Sweep paved streets at least once per day where there is evidence of dirt that has been carried on to the roadway.
- n) Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.

- o) Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.
- p) Obtain CARB Portable Equipment Registration with the state or a local district permit for portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles. Arrange appropriate consultations with CARB or the local air district to determine registration and permitting requirements prior to equipment operation at the site.
- q) Use Tier 4 Final equipment or better for all engines above 50 hp. In the event that construction equipment cannot meet to Tier 4 Final or better engine certification, the Project representative or contractor must demonstrate through future study with written findings supported by substantial evidence that is approved by the project's lead agency before using other technologies/strategies. Alternative applicable strategies may include, but would not be limited to, construction equipment with Tier 4 Interim or reduction in the number and/or horsepower rating of construction equipment and/or limiting the number of construction equipment operating at the same time. All equipment must be tuned and maintained in compliance with the manufacturer's recommended maintenance schedule and specifications. All maintenance records for each equipment and their contractor(s) should make available for inspection and remain on-site for a period of at least two years from completion of construction, unless the individual project can demonstrate that Tier 4 Final or better engines would not be required to mitigate emissions below significance thresholds. Project sponsors should also consider including ZE/ZNE technologies where appropriate and feasible or higher tier standard diesel equipment as it becomes developed and feasible.
- r) Projects located within the South Coast Air Basin and the Coachella Valley should consider applying for South Coast AQMD "SOON" funds which provides funds to applicable fleets for the purchase of commercially available low-emission heavy-duty engines to achieve near-term reduction of NOx emissions from in-use off-road diesel vehicles.
- s) Projects located within AB 617 communities should review the applicable Community Emissions Reduction Plan (CERP) for identification of additional feasible mitigation that can be applied to individual projects.
- t) Where applicable, projects should provide information about air quality related programs to schools, including the Environmental Justice Community Partnerships (EJCP), Clean Air Ranger Education (CARE), and Why Air Quality Matters programs.
- u) Projects should work with local cities and counties to install adequate signage that prohibits truck idling in certain locations (e.g., near schools and sensitive receptors).
- v) As applicable for airport projects, the following measures should be considered:
 - Considering operational improvements to reduce taxi time and auxiliary power unit usage, where feasible. Additionally, consider single engine taxing, if feasible as allowed per Federal Aviation Administration guidelines.

- Set goals to achieve a reduction in emissions from aircraft operations over the lifetime of the proposed project.
 - Use ground service equipment (GSE) that can operate on battery-power. If using electric equipment is not feasible, require the use of alternative fuel, the cleanest gasoline equipment, or Tier 4 Final, at a minimum.
- w) As applicable for port projects, the following measures should be considered:
- Develop specific timelines for transitioning to zero-emissions cargo handling equipment (CHE).
 - Develop interim performance standards with a minimum amount of CHE replacement each year to ensure adequate progress.
 - Use short side electric power for ships, which may include tugboats and other ocean-going vessels or develop incentives to gradually ramp up the usage of shore power.
 - Install the appropriate infrastructure to provide shore power to operate the ships. Electrical hookups should be appropriately sized.
 - Maximize participation in the Port of Los Angeles' Vessel Speed Reduction Program or the Port of Long Beach's Green Flag Initiation Program in order to reduce the speed of vessel transiting within 40 nautical miles of Point Fermin.
 - Encourage the participation in the Green Ship Incentives.
 - Offer incentives to encourage the use of on-dock rail.
- x) As applicable for rail projects, the following measures should be considered:
- Provide the highest incentives for electric locomotives and then locomotives that meet Tier 5 emission standards with a floor on the incentives for locomotives that meet Tier 4 emission standards.
- y) Projects that will introduce sensitive receptors within 500 feet of freeways and other sources should consider installing high-efficiency or enhanced filtration units, such as Minimum Efficiency Reporting Value (MERV) 13 or better. Installation of enhanced filtration units can be verified during occupancy inspection prior to the issuance of an occupancy permit.
- z) Develop an ongoing monitoring, inspection, and maintenance program for the MERV filters.
- Disclose potential health impacts to prospective sensitive receptors from living in close proximity to freeways or other sources of air pollution and the reduced effectiveness of air filtration systems when windows are open or residents are outside.
 - Identify the responsible implementing and enforcement agency to ensure that enhanced filtration units are installed on-site before a permit of occupancy is issued.
 - Disclose the potential increase in energy costs for running the HVAC system to prospective residents.
 - Provide information to residents on where MERV filters can be purchased.
 - Provide recommended schedule (e.g., every year or every six months) for replacing the enhanced filtration units.

- Identify the responsible entity such as future residents themselves, Homeowner’s Association, or property managers for ensuring enhanced filtration units are replaced on time.
 - Identify, provide, and disclose ongoing cost-sharing strategies, if any, for replacing the enhanced filtration units.
 - Set criteria for assessing progress in installing and replacing the enhanced filtration units; and
 - Develop a process for evaluating the effectiveness of the enhanced filtration units.
- aa) Consult the SCAG Environmental Justice Toolbox available on the SCAG’s Environmental Justice webpage for potential measures to address impacts to low-income and/or communities of color.
- bb) The following criteria related to diesel emissions shall be implemented on by individual project sponsors as appropriate and feasible:
- Diesel nonroad vehicles on site for more than 10 total days shall have either (1) engines that meet EPA on road emissions standards or (2) emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%.
 - Diesel generators on site for more than 10 total days shall be equipped with emission control technology verified by EPA or CARB to reduce PM emissions by a minimum of 85%.
 - Nonroad diesel engines on site shall be Tier 2 or higher.
 - Diesel nonroad construction equipment on site for more than 10 total days shall have either (1) engines meeting EPA Tier 4 nonroad emissions standards or (2) emission control technology verified by EPA or CARB for use with nonroad engines to reduce PM emissions by a minimum of 85% for engines for 50 hp and greater and by a minimum of 20% for engines less than 50 hp.
 - The construction contractor shall maintain a list of all diesel vehicles, construction equipment, and generators to be used on site. The list shall include the following:
 - i. Contractor and subcontractor name and address, plus contact person responsible for the vehicles or equipment.
 - ii. Equipment type, equipment manufacturer, equipment serial number, engine manufacturer, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel usage and hours of operation.
 - iii. For the emission control technology installed: technology type, serial number, make, model, manufacturer, EPA/CARB verification number/level, and installation date and hour-meter reading on installation date.
 - Establish generator sites and truck-staging zones for vehicles waiting to load or unload material on site. Such zones shall be located where diesel emissions have the least impact on abutters, the general public, and especially sensitive receptors such as hospitals, schools, daycare facilities, elderly housing, and convalescent facilities.
 - Maintain a monthly report that, for each on road diesel vehicle, nonroad construction equipment, or generator onsite, includes:

- i. Hour-meter readings on arrival on-site, the first and last day of every month, and on off-site date.
 - ii. Any problems with the equipment or emission controls.
 - iii. Certified copies of fuel deliveries for the time period that identify:
 1. Source of supply
 2. Quantity of fuel
 3. Quantity of fuel, including sulfur content (percent by weight)
- cc) Promote energy efficiency and exceed Title-24 Building Envelope Energy Efficiency Standards (California Building Standards Code):
- Install programmable thermostat timers
 - Obtain Third-party HVAC commissioning and verification of energy savings (to be grouped with exceedance of Title 24).
 - Install energy efficient appliances (Typical reductions for energy-efficient appliances can be found in the Energy Star and Other Climate Protection Partnerships Annual Reports.)
 - Install higher efficacy public street and area lighting
 - Limit outdoor lighting requirements
 - Replace traffic lights with LED traffic lights
 - Establish onsite renewable or carbon neutral energy systems – generic, solar power and wind power
 - Utilize a combined heat and power system
- dd) Promote transportation efficiency. The following measures can be used to increase transportation efficiency:
- Locate project near bike path/bike lane
 - Provide pedestrian network improvements, such as interconnected street network, narrower roadways and shorter block lengths, sidewalks, accessibility to transit and transit shelters, traffic calming measures, parks and public spaces, minimize pedestrian barriers.
 - Provide traffic calming measures, such as:
 - i. Marked crosswalks
 - ii. Count-down signal timers
 - iii. Curb extensions
 - iv. Speed tables
 - v. Raised crosswalks
 - vi. Raised intersections
 - vii. Median islands
 - viii. Tight corner radii

- ix. Roundabouts or mini-circles
- x. On-street parking
- xi. Chicanes/chokers
- Create urban non-motorized zones
- Provide bike parking in non-residential and multi-unit residential projects
- Dedicate land for bike trails
- Limit parking supply through:
 - i. Elimination (or reduction) of minimum parking requirements
 - ii. Creation of maximum parking requirements
 - iii. Provision of shared parking
- Require residential area parking permit.
- Provide ride-sharing programs
 - i. Designate a certain percentage of parking spacing for ride sharing vehicles
 - ii. Designating adequate passenger loading and unloading and waiting areas for ride-sharing vehicles
 - iii. Providing a web site or messaging board for coordinating rides
 - iv. Permanent transportation management association membership and finding requirement.
- ee) Lengthen the construction period during smog season (May through October), to minimize the number of vehicles and equipment operating at the same time.
- ff) Install signage containing the complaint number of the local air district where construction activities are located at the construction sites.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan, for federal transportation conformity purposes, conforms to the applicable AQMPs/SIPs in the SCAG region, and the Plan's regional emissions would be below the applicable emissions caps of all applicable criteria pollutants as set forth in the applicable AQMPs/SIPs that are approved by or pending approval of USEPA, for all applicable milestones, attainment, and planning horizon years, and in all 26 nonattainment and maintenance areas within the SCAG region. However, while the Plan demonstrates positive transportation conformity and complies with the federal Transportation Conformity Regulations, it is not possible or feasible to determine if individual projects would conflict with or obstruct implementation of applicable air quality plans. Given the uncertainties regarding the nature and location of future development, this 2024 PEIR identifies SCAG mitigation measures and project-level mitigation measures.

At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to consistency with air plans (with the exception of federal transportation conformity), due to the regional nature of the analysis, unknown site conditions and project-specific details, and

SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT AQ-2 **Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.**

Significant and Unavoidable Impact – Mitigation Required

At the regional level, construction criteria pollutant emissions vary year to year and may be similar to existing or greater or less, often depending on the economy. At the regional level, operational criteria pollutant emissions would be mostly reduced compared to existing conditions. In years 2030, 2040, and 2050, when compared to existing conditions, on-road mobile source emissions would generally decrease, with the exception of PM10 emissions in Riverside County, despite increasing traffic. On-road mobile source particulate matter emissions would remain the same or decrease from existing conditions in the other counties. Within the SCAB (which is likely indicative of the region as a whole), SCAQMD indicates that total pollutant emissions are being reduced through at least 2050, except for SOx and PM2.5, which are expected to remain approximately the same.

CONSTRUCTION EMISSIONS

Over the 20-year lifetime of the Plan, various transportation and development projects would be constructed. These construction activities would result in ongoing emissions of air pollutants including ROG, NOx, SO2, PM10 and PM2.5. Construction emissions associated with each individual project are generally short-term, temporary, and are limited to the project construction phase and within project fence line. The sources associated with these emissions include construction equipment, vehicle trip emissions generated by worker vehicles, haul trucks and vendor trucks, building activities, such as the paving of asphalt and application of paint and other surface coatings, and fugitive dust emissions from demolition, grading and other ground-disturbing activities. Typically, larger projects are associated with larger emissions during construction. As described in the methodology section above, the magnitude of air quality impacts from a series of potential construction scenarios (example construction projects for different analysis years) was quantified to demonstrate how impacts vary by project size as regulations become more stringent over time. Total construction emissions are taken into account, as appropriate, as part of the preparation of AQMPs.

Construction emissions are presented in the table below for four project sizes 1) low-end (LE) scenario, 2) the low-mid-range (LM) scenario, 3) the high-mid-range (HM) scenario and 4) the high-end (HE) scenario. These four potential construction scenarios were analyzed for the analysis years 2025, 2032, 2037, and 2050. The year 2025 corresponds to the NAAQS attainment year for the annual PM2.5 standard (for serious nonattainment designation). The years 2032 and 2037 correspond to attainment years for the 2008 and 2015 ozone standards (for the extreme nonattainment designation). The year 2050 is the Plan horizon year. Evaluations for the four scenarios and four analysis years was completed for 1) Los Angeles County within the SCAQMD, 2) Orange County within the SCAQMD, 3) Riverside County in the SCAQMD, 4) Northern Los Angeles County in the AVAQMD, 5) San Bernardino County in the MDAQMD, 6) Imperial County in the ICAPCD and 7) Ventura County in the VCAPCD, The construction emissions vary among the different air districts based on factors such as mobile source fleet mixes, differing allowed VOC limits in coating by air districts, regional wind speeds, etc. In addition, as noted above, different air districts have different thresholds of significance.

To simplify the presentation here the construction scenario for Los Angeles County, is presented below. The analysis of construction scenario emissions in Los Angeles County is representative of emissions in the other areas and is generally more conservative as emission thresholds are the most stringent within the SCAQMD. **Table 3.3-12, Construction Emissions Summary (lbs/day), Los Angeles County, SCAQMD**, presents the estimated construction emissions for each of the four construction scenarios for each of the four analysis years for projects located in Los Angeles County in the jurisdiction of the SCAQMD. As demonstrated below, even though emissions decrease over time for each scenario, there is a possibility to exceed the NOx emissions thresholds from larger projects through year 2032. By Year 2037 even the larger template projects are not exceeding thresholds. That’s not to say there couldn’t be projects that could still exceed thresholds, just that the example projects selected for analysis show less than significant impacts for all pollutants in year 2037 and beyond.

TABLE 3.3-12 Construction Emissions Summary (lbs/day),
Los Angeles County, SCAQMD

	ROG	NOX	CO	S02	PM10 TOTAL	PM2.5 TOTAL
LE Scenario						
Year 2025	24.1	23.2	24.3	0.1	5.2	2.3
Year 2032	23.7	16.4	22.2	0.1	4.9	2.0
Year 2037	23.6	13.9	20.6	0.1	4.7	1.9
Year 2050	23.5	10.1	18.6	0.1	4.6	1.7
Threshold	75	100	550	150	150	55
Exceed?	No	No	No	No	No	No
LM Scenario						
Year 2025	25.3	52.3	47.4	0.1	10.8	4.3
Year 2032	24.6	36.8	42.3	0.1	10.2	3.7
Year 2037	24.4	30.7	38.7	0.1	9.9	3.5
Year 2050	24.2	22.0	33.0	0.1	9.5	3.1
Threshold	75	100	550	150	150	55
Exceed?	No	No	No	No	No	No
HM Scenario						
Year 2025	37.6	114.5	87.5	0.3	32.0	12.4
Year 2032	36.6	84.9	74.7	0.3	30.9	11.5
Year 2037	36.3	71.7	64.7	0.3	30.4	11.0
Year 2050	35.8	52.1	51.3	0.3	29.6	10.2
Threshold	75	100	550	150	150	55
Exceed?	No	Yes	No	No	No	No

	ROG	NOX	CO	S02	PM10 TOTAL	PM2.5 TOTAL
HE Scenario						
Year 2025	38.1	150.0	106.6	0.5	42.3	15.1
Year 2032	37.1	110.3	91.2	0.5	41.1	14.0
Year 2037	36.7	92.8	79.7	0.5	40.5	13.4
Year 2050	36.2	69.5	62.8	0.5	39.6	12.6
Threshold	75	100	550	150	150	55
Exceed?	No	Yes	No	No	No	No

For the four potential construction scenarios located in the six other geographic and jurisdictional areas, the construction emissions and comparisons to the corresponding air quality CEQA significance thresholds are provided in the Appendix B-1 to this PEIR. Like Los Angeles County in the SCAQMD, the construction emission scenarios for the other counties present similar trends, including a general trend of reduction in emissions over time for each scenario.

While construction of each individual project is temporary and limited in nature, emissions from individual construction projects have the potential to exceed localized and daily thresholds. As stated above, the five air districts in the SCAG region have set mass daily or annual construction and/or operational emissions thresholds. Furthermore, all the air districts in the SCAG region have relevant fugitive dust rules that apply to construction activities. While these thresholds are to be applied to individual construction projects, the air districts do not provide a threshold for use with regional planning documents such as the RTP/SCS. However, SCAQMD does account for estimated construction emissions from off-road construction equipment within the 2022 AQMP. As demonstrated in the 2022 AQMP, and discussed above, total regional emissions of criteria pollutants including from construction sources would generally decline through at least 2050. In addition, at the individual project level there is the potential for local exceedances.

The construction emissions summary tables above outline scenarios in the South Coast Air Basin and show in some cases, larger projects have the potential to exceed emissions significance thresholds for NOx before 2037. Construction emissions vary depending on project size, construction year and location. Furthermore, project-specific analyses may vary depending on use of higher tier emission controls and different phasing assumptions with respect to use of equipment. Therefore, in the absence of project-specific information, construction activities may result in emissions that could be significant.

OPERATIONAL EMISSIONS

As noted in Chapter 2, *Project Description*, as part of the process for developing Connect SoCal 2024, SCAG is responsible for ensuring that on-road mobile source emissions meet NAAQS and CAAQS for the SCAG region, as well as SB 375 GHG targets (for passenger vehicles and light-duty trucks only).

On-road mobile source emissions evaluated in Connect SoCal 2024 by SCAG include passenger vehicles, light-duty trucks, medium-duty trucks, and heavy-duty trucks. CARB identifies emissions standards for these sources. Off-road vehicles generally refer to construction equipment. In the AQMP, off-road vehicles refer to locomotives, ocean going vessels, off-highway recreational vehicles, cargo handling equipment, farm equipment, and aircraft. CARB is responsible for implementing the AQMP with respect to emissions standards for construction equipment

sold within the state. The USEPA implements the AQMP with respect to regulating emissions from interstate heavy-duty trucks, certain categories of off-road equipment, aircrafts, locomotives, and ships as these are federally regulated sources (i.e., sources that only the federal government has regulator purview over).

The air quality management and air pollution control districts are responsible other sources of air pollution in the SCAG region (such as stationary sources, construction equipment) and ensuring that standards are met. However, rail, aviation and ocean-going vessels are regulated at the federal level and air districts have no regulatory purview to address these sources and are not responsible for addressing these sources. These air quality management and air pollution control districts include SCAQMD, MDAQMD, VCAPCD, AVAQMD, and ICAPCD. The SCAQMD includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties (SCAQMD 1999). SCAQMD's 2022 AQMP's analysis of the emissions resulting from stationary sources, construction equipment, windblown dust, airplanes, trains, and ships is comprehensive and is discussed below as representative of (i.e., including most of) these emissions throughout the entire SCAG region. Other air districts do not publish such comprehensive data and therefore such data is not available for the entire region. As stated in Section 3.3.3, the SCAQMD region is home to more than 17 million people—the majority of the approximately 19 million people in the SCAG region. Thus, the use of the SCAQMD 2022 AQMP emissions data as representative of the SCAG region is a reasonable approach.

In addition to on-road mobile sources provided by SCAG, SCAQMD's 2022 AQMP provides emission estimates for stationary sources and off-road mobile sources from 2018 to 2037 (for informational purposes, these data were linearly interpolated for years 2019, 2030, 2040, and 2050), see **Table 3.3-13, SCAQMD's 2022 AQMP Forecast of Annual Average Total Emissions in SCAB through 2050 (Including Summer Planning)**. Stationary sources include both point and area sources. Point stationary sources include permitted facilities, such as power plants and refineries, with one or more emission sources. Area stationary sources include small emission sources, such as residential water heaters, architectural coatings, consumer products, and smaller permitted sources. Off-road mobile sources include construction equipment, locomotives, ocean-going vessels, aircraft, cargo handling equipment, and farm equipment (SCAQMD 2022b).^{16,17} SCAQMD does not forecast out to 2050, but the general trend of most pollutants decreasing is not expected to change.

¹⁶ For the 2022 AQMP CMAQ modeling simulations were conducted using a Lambert Conformal grid projection where the western boundary of the domain is at 084 UTM, over 100 miles west of the ports of Los Angeles and Long Beach. The eastern boundary extends beyond the Colorado River, while the northern and southern boundaries of the domain extend to the southern edge of the San Joaquin Valley and the Northern portions of Mexico (3543 UTM).

¹⁷ 2022 AQMP Aircraft emissions at small general aviation airports were allocated by using the California Air Resources Board's Gridded Aircraft Trajectory Emissions (GATE) model. Aircraft emissions at commercial airports were first calculated using the Federal Aviation Authority's Aviation Environmental Design Tool (AEDT). AEDT resolves emissions into four vertical layers: ground level, below 1,000 feet, below mixing height, and below 10,000 feet. The mixing height corresponds to an annual average, airport-specific value assigned in AEDT.

TABLE 3.3-13 SCAQMD’s 2022 AQMP Forecast of Annual Average Total Emissions in SCAB through 2050 (Including Summer Planning)

YEAR	TONS/DAY					
	VOC	NOX	CO	SOX	PM2.5	NH3
2018	406	351	1658	15	59	77
2019	401	331	1618	15	59	78
2023	378	249	1458	15	58	79
2025	371	225	1397	15	58	81
2030	351	205	1157	15	58	83
2031	347	201	1109	15	58	83
2032	345	199	1067	15	58	83
2037	339	184	923	15	59	85
2040	336	175	837	15	60	87
2050	327	154	635	15	61	91

Source: SCAQMD 2022a, Table 7-8

Table Note:

Data are linearly interpolated for informational purposes for years 2019, 2030, 2040, and 2050 based on available data from the 2022 AQMP.

As shown in Table 3.3-13, in the SCAB region total VOC, NOx, and CO emissions are anticipated to decrease between 2018 to 2037, and through 2050. The SOx, and PM2.5 emissions are expected to remain approximately the same, which is expected to occur due to increases in population and activity that will outpace the emissions reductions expected to occur from newer and cleaner equipment and vehicles. VOC and NOx emissions are expected to decrease due to existing regulations, such as on- and off-road equipment regulations and vehicle emissions standards (SCAQMD 2022a).

The SCAQMD’s 2022 AQMP identifies the top ten source categories for VOC, NOx, SOx, and PM2.5 for the years 2018, 2023, 2025, 2031, 2032, and 2037 (for informational purposes, these data were linearly interpolated for years 2019, 2030, 2040, and 2050). Review of these data demonstrates that in 2019, passenger cars, light-duty trucks, and medium duty trucks are anticipated to be the top ten contributors of VOC emissions in the SCAG region. By 2037, VOC emissions from on-road mobile sources are anticipated to substantially decrease due to more stringent on-road standards, and only passenger cars and light-duty trucks are anticipated to be within the top ten contributors to VOC emissions. Throughout the entire AQMP planning year, heavy-duty trucks, off-road construction equipment, ships, and commercial boats will be the top contributors of NOx emissions, although the emission rates will decline over the years. Regarding SOx emissions, ships and commercial boats and aircrafts are the highest contributors in the SCAB region and are anticipated to fluctuate over the AQMP planning years. Finally, heavy-duty diesel trucks, light-duty trucks, and passenger cars are the only mobile sources in the top ten contributors for PM2.5 emissions in the SCAB region. From 2018 to 2037, passenger car PM2.5 emissions are expected to slightly increase while paved road dust is expected to increase from 8.6 to 9.4 tons per day. Construction and demolition-related PM2.5 emissions are expected to increase while off-road equipment and heavy-duty diesel trucks fall off of the top ten emitter categories in 2037 (SCAQMD 2022a).

Other air basins in the SCAG region include the SCCAB, SSAB, and MDAB. As demonstrated in Table 3.3-6, like SCAB, all three air basins are in nonattainment for ozone and PM10. The SCCAB and portions of the SSAB are also in nonattainment for PM2.5. Each of these air basins has an AQMP or SIP to plan the basin’s attainment status pursuant to the federal CAA to address nonattainment (MDAQMD 2017).

ON-ROAD MOBILE SOURCE EMISSIONS

For the purposes of this PEIR, mobile source air emissions were estimated for the years 2030, 2040, and 2050 with the Plan and compared to the existing conditions (2019). The calculated emissions were compiled for ROG, NOx, CO, PM10, PM2.5, and SOx for each county in the SCAG region. The only pollutants expected to increase with implementation of Connect SoCal 2024 are PM10 annual emissions in Imperial and Riverside Counties. Annual PM10 in the remaining counties will decrease from the existing emissions to 2030, 2040, and 2050. ROG, NOx, CO, PM2.5, and SOx emissions in every county are expected to decrease with implementation of the Plan (Table 3.3-14, On-Road Mobile Source Criteria Air Pollutant Emission by County – Existing Conditions [2019] vs year 2030, 2040, and 2050 Plan).

As shown in Table 3.3-14, the Plan will reduce emissions from existing conditions (2019) except a slight increase in PM10 emissions in 2050 in Imperial and Riverside County. In part, the reduction is due to vehicle emissions reductions required by federal and states rules and policies (see 3.3.2 Regulatory Framework). Mobile source particulate matter emissions would remain approximately the same or decrease from existing conditions in the other counties. Particulate matter is generated by tires on roadways and therefore, unlike other pollutants that can be regulated through tailpipe emission controls, particulate matter is difficult to address without simply reducing VMT.

The Plan includes transportation projects including transit projects and land use strategies aimed at reducing the VMT across the region. One result of these investments is a decline in per capita VMT compared to existing conditions (although total VMT for all vehicles would increase) (see further discussion in Section 3.17, Transportation). At the regional level, on-road mobile source emissions would generally decrease (with the exception of small increases in PM10 in some counties). However, it is possible that individual projects, particularly development projects that generate many vehicle trips (i.e., high VMT) would result in localized air quality impacts.

TABLE 3.3-14 On-Road Mobile Source Criteria Air Pollutant Emissions by County – Existing Condition (2019) vs Year 2030, 2040, and 2050 Plan

COUNTY		[TONS/DAY]								
		ROG		NOX			CO	PM10	PM2.5	SOX
		SUMMER	ANNUAL	SUMMER	ANNUAL	WINTER	WINTER	ANNUAL	ANNUAL	ANNUAL
Imperial	Existing	2	2	5	6	6	16	0.3	0.1	<0.1
	Plan (Year 2030)	1	1	2	2	2	7	0.3	0.1	<0.1
	Plan (Year 2040)	1	1	2	2	2	6	0.3	0.1	<0.1
	Plan (Year 2050)	1	1	2	2	2	6	0.3	0.1	<0.1
	Difference (Year 2030)	-1	-1	-3	-4	-4	-9	<0.1	<0.1	<0.1
	Difference (Year 2040)	-1	-1	-4	-4	-4	-10	<0.1	<0.1	<0.1
	Difference (Year 2050)	-2	-1	-4	-4	-4	-10	<0.1	<0.1	<0.1

COUNTY		[TONS/DAY]								
		ROG		NOX			CO	PM10	PM2.5	SOX
		SUMMER	ANNUAL	SUMMER	ANNUAL	WINTER	WINTER	ANNUAL	ANNUAL	ANNUAL
Los Angeles	Existing	53	52	84	93	91	497	6.9	3.0	1.0
	Plan (Year 2030)	27	27	28	31	30	241	5.8	2.1	0.8
	Plan (Year 2040)	20	20	19	21	21	177	5.6	1.9	0.6
	Plan (Year 2050)	18	18	18	20	20	162	5.7	1.9	0.6
	Difference (Year 2030)	-26	-25	-56	-63	-60	-256	-1.1	-0.9	-0.2
	Difference (Year 2040)	-32	-32	-65	-73	-70	-320	-1.3	-1.1	-0.3
	Difference (Year 2050)	-34	-33	-66	-74	-71	-335	-1.2	-1.0	-0.3
Orange	Existing	16	16	22	25	24	149	2.2	0.9	0.3
	Plan (Year 2030)	9	9	8	9	9	77	1.9	0.7	0.2
	Plan (Year 2040)	7	7	5	6	6	57	1.8	0.6	0.2
	Plan (Year 2050)	6	6	5	5	5	54	1.8	0.6	0.2
	Difference (Year 2030)	-7	-7	-14	-16	-15	-73	-0.3	-0.2	-0.1
	Difference (Year 2040)	-9	-9	-17	-19	-18	-93	-0.4	-0.3	-0.1
	Difference (Year 2050)	-10	-10	-18	-20	-19	-96	-0.4	-0.3	-0.1
Riverside	Existing	14	13	28	31	30	115	2.0	0.9	0.3
	Plan (Year 2030)	8	8	11	12	12	62	1.8	0.7	0.2
	Plan (Year 2040)	6	6	9	9	9	52	1.9	0.7	0.2
	Plan (Year 2050)	6	6	9	10	10	51	2.1	0.7	0.2
	Difference (Year 2030)	-6	-5	-17	-19	-18	-52	-0.2	-0.3	<-0.1
	Difference (Year 2040)	-7	-7	-20	-21	-21	-63	-0.1	-0.3	-0.1
	Difference (Year 2050)	-8	-7	-19	-21	-20	-63	0.1	-0.2	<-0.1
San Bernardino	Existing	16	15	32	35	34	129	2.2	1.0	0.3
	Plan (Year 2030)	9	8	12	13	13	64	1.9	0.7	0.2
	Plan (Year 2040)	6	6	9	10	10	51	2.0	0.7	0.2
	Plan (Year 2050)	6	6	9	10	10	50	2.1	0.8	0.2
	Difference (Year 2030)	-7	-7	-20	-22	-21	-65	-0.3	-0.3	-0.1
	Difference (Year 2040)	-10	-9	-23	-25	-24	-78	-0.2	-0.3	-0.1
	Difference (Year 2050)	-10	-9	-23	-25	-24	-79	<-0.1	-0.2	-0.1

COUNTY		[TONS/DAY]								
		ROG		NOX			CO	PM10	PM2.5	SOX
		SUMMER	ANNUAL	SUMMER	ANNUAL	WINTER	WINTER	ANNUAL	ANNUAL	ANNUAL
Ventura	Existing	3	3	6	7	6	25	0.5	0.2	0.1
	Plan (Year 2030)	2	2	2	2	2	12	0.4	0.1	<0.1
	Plan (Year 2040)	1	1	1	1	1	9	0.4	0.1	<0.1
	Plan (Year 2050)	1	1	1	1	1	8	0.4	0.1	<0.1
	Difference (Year 2030)	-1	-1	-4	-4	-4	-13	-0.1	-0.1	<-0.1
	Difference (Year 2040)	-2	-2	-5	-5	-5	-17	-0.1	-0.1	<-0.1
	Difference (Year 2050)	-2	-2	-5	-6	-5	-18	-0.1	-0.1	<-0.1

As shown in Section 3.17, *Transportation*, Table 3.17-15, VMT Per Capita By County (2019, 2030, 2045, and 2050), VMT per capita under the Plan would be less than existing conditions with the exception of Imperial County.

OFF-ROAD MOBILE SOURCES

According to the SCAQMD’s 2022 AQMP, off-road mobile source emissions (like those from airplane, locomotives, and ships) will observe decreased VOC, NOx, CO, and PM2.5 emissions in the SCAB region between 2018 and 2037 (for informational purposes, these data were linearly interpolated for years 2019, 2030, 2040, and 2050); see **Table 3.3-15, 2022 AQMP Forecast of Annual Average Off-Road Mobile Emissions in SCAB (Including Summer Planning)**.

TABLE 3.3-15 2022 AQMP Forecast of Annual Average Off-Road Mobile Emissions in SCAB (Including Summer Planning)

YEAR	TONS/DAY					
	VOC	NOX	CO	SOX	PM2.5	NH3
2018	107	143	807	4	6	0
2019	105	142	791	5	6	0
2030	74	120	609	5	5	0
2037	54	106	492	5	4	0
2040	46	101	443	6	4	0
2050	18	81	277	6	3	0

Source: SCAQMD 2022a, Tables 3-2 and 3-4

Table Note: Data are linearly interpolated for informational purposes for years 2019, 2030, 2040, and 2050 based on available data from the 2022 AQMP.

As shown in Table 3.3-15, emissions from off-road mobile VOC, NOx, CO, and PM2.5 emissions within the SCAB region are anticipated to decrease in future years. SOx emissions from off-road mobile are anticipated to increase and NH3 emissions will remain constant (near zero level).

STATIONARY SOURCES

The projected emissions from other pollutants from stationary sources are provided in **Table 3.3-16, AQMP Forecast of Annual Average Off-Road Mobile Emissions in SCAB**. As shown in Table 3.3-16, stationary source emissions from NOx and CO are anticipated to decrease, SOx and NH3 to remain the same and VOC and PM2.5 to increase when 2018 conditions are compared to 2037.

Total NOx emissions show a modest 4 percent decrease between 2016 AQMP projections and the 2022 AQMP inventory. Stationary source NOx emissions have decreased close to 14 percent. VOC emissions stayed about the same between the 2016 AQMP projections and the 2022 AQMP inventory, with stationary sources increasing by approximately 3 percent. However, between 2018 and 2037, NOx is expected to decrease by 21 percent and VOC is expected to increase by 14 percent (for informational purposes, these data were linearly interpolated for years 2019, 2030, 2040, and 2050).

TABLE 3.3-16 AQMP Forecast of Annual Average Stationary Source Emissions in SCAB

YEAR	TONS/DAY					
	VOC	NOX	CO	SOX	PM2.5	NH3
2018	218	52	104	9	42	61
2019	220	52	104	9	43	61
2030	238	46	99	9	45	61
2037	249	41	96	9	46	61
2040	254	40	95	9	47	61
2050	271	34	91	9	49	61
2018 vs. 2037	14%	-21%	-8%	0%	10%	0%
2019 vs. 2030	8%	-12%	-5%	0%	5%	0%
2019 vs. 2040	15%	-23%	-9%	0%	9%	0%
2019 vs. 2050	23%	-35%	-13%	0%	14%	0%

Source: SCAQMD 2022a, Tables 3-2 and 3-4

Table Note: Data are linearly interpolated for informational purposes for years 2019, 2030, 2040, and 2050 based on available data from the 2022 AQMP.

POTENTIAL OVERLAPPING CONSTRUCTION AND OPERATIONAL EMISSIONS

The assessment of Plan impacts in the 2024 PEIR was prepared at the programmatic level for the entire SCAG region for a development timeframe spanning over 20+ years from 2019–2050. Evaluating specific development of individual projects is not possible and would be speculative as the anticipated timing, location, scale, and duration of land use changes and new development are not known at this time. This PEIR identifies county and regional emissions for reasonably foreseeable development for the years 2025, 2032, 2037 and 2050. SCAG cannot reasonably anticipate if growth would be linear or sporadic between 2019 and 2050, nor can SCAG attempt to characterize how many individual projects may be undergoing construction at any given time. The analysis of construction emissions presented in this PEIR evaluates four template scenarios assuming these emissions are net new. Construction activities are occurring within the region under existing conditions, and there is no way to determine the incremental effect of implementing the Plan on average or maximum daily construction activity (i.e., the change in daily construction equipment hours of use or change in daily construction vehicle miles traveled).

Furthermore, each individual project developed within the region would be subject to environmental review consistent with each air district and local agency procedures and would be required to demonstrate consistency with the AQMP as appropriate. Overlapping construction and operational activities could result in a potentially significant and unavoidable impact on a programmatic level.

WILDFIRE

SCAQMD accounts for most sources of pollutants in their AQMP. However, in recent years wildfires have added substantial amounts of pollutants to the SCAB that are unaccounted for in the AQMP. However, the SCAQMD 2022 AQMP begins addressing the potential impacts in a section titled "Atypical Ozone in 2020: The COVID-19 Pandemic, Extreme Heat, and Wildfires."

Wildfire emissions are likely to result in significant air quality and health impacts in the future. According to SCAG's Public Health Draft Technical Report, wildfires are going to become more prevalent as climate change leads to drier, hotter conditions in Southern California (SCAG 2019c). The SCAQMD and MDAQMD include information regarding active wildfires, resulting air quality impacts, and the health risks of wildfires on their websites. (SCAQMD 2023f; MDAQMD 2023b). According to the USEPA's Exceptional Events Rule, exceedance of air data recorded at monitoring stations triggered by natural events or human-caused events that are unlikely to recur at a particular location and not reasonably controllable or preventable (e.g., fireworks displays, wildfires, prescribed fires, high wind dust events, etc.) can be excluded when determining NAAQS attainment (Federal Register 2016).

WINDBLOWN DUST

The SCAQMD 2022 AQMP addresses the potential for windblown dust to yield substantial amounts of pollutants, primarily particulate matter, to the SCAB that were previously unaccounted for or under-reported. Fugitive dust emissions from vehicle trips on unpaved surfaces, windblown dust settling on solar panels or on bare dirt around utility-scale solar farms (which can be resuspended during wind events), or other similar types of operational activities may occur in the SCAB. Appendix III of the SCAQMD 2022 AQMP demonstrates that paved road dust emissions of PM_{2.5} will increase between 2018 and 2037 and unpaved road dust will become a top ten emitter category of PM_{2.5} by 2037 (SCAQMD 2022c).

CUMULATIVELY CONSIDERABLE INCREASE IN EMISSIONS

The analysis of the Plan is a cumulative analysis of air quality impacts resulting from the long-term growth within the SCAG region. At the regional level, projects that are considered cumulative to and similar to the Plan are other regional-scale projects, e.g., other RTPs/SCSs for adjacent jurisdictions and AQMPs.

In 2030, 2040, and 2050, when compared to existing conditions, on-road mobile source emissions would decrease, with the exception of a slight increase to PM₁₀ in 2050 in Imperial and Riverside Counties. Mobile source particulate matter emissions would generally remain the same or decrease from existing conditions for all other pollutants (see Table 3.3-14).

The state of California is made up of 18 MPOs. SCAG's jurisdiction makes up the majority of the Southern California region and is surrounded by three other MPO's including San Diego Association of Governments (SANDAG) to the south, Kern Council of Governments (KCOG) north of Ventura and Los Angeles Counties, and Santa Barbara

County Association of Governments (SBCAG) north of Ventura County (Institute for Local Government 2023).¹⁸ Each of these MPO's prepared a RTP/SCS to develop transportation and land use strategies within their region.

SANDAG's Final 2021 Regional Plan combines the Regional Transportation Plan, Sustainable Communities Strategy (SCS), and Regional Comprehensive Plan. As such, the 2021 Regional Plan must comply with specific state and federal mandates, including an SCS, per Senate Bill 375 (Steinberg 2008), that achieves greenhouse gas emission reduction targets set by CARB; compliance with federal civil rights requirements (Title VI); and environmental justice considerations, air quality conformity, and a public participation process. SANDAG's 2050 RTP/SCS EIR concluded that on-road vehicle emissions would decrease for CO, ROG, PM2.5, and NOx pollutants from 2016 to 2050, with minimal increases of 0.1 and 0.2 tons/day for SOx and PM2.5, respectively. The San Diego Air Pollution Control District maintains air plans for ozone and CO for the San Diego Air Basin (SANDAG 2021). Therefore, the growth in the San Diego region under the SANDAG's plan would not increase emissions for which the area is in non-attainment.

KCOG's 2022 RTP PEIR similarly concluded that by 2046, implementation of the RTP would reduce ROG, NOx, CO, PM2.5, and SOx emissions, however PM10 emissions would increase. The KCOG's PEIR determines that these increases in particulate matter are likely due to the increases in VMT, which would increase roadway, brake, and tire particulate matter dust. The KCOG region includes the Eastern Kern Air Pollution Control District and the San Joaquin Valley Air Pollution Control District (SJVAPCD). The SJVAPCD is in non-attainment for federal and state ozone and PM2.5 as well as state PM10 standards. The Eastern Kern Air Pollution Control District is in a moderate nonattainment area for the national, state 8-Hour, and state 1-Hour ozone standard. Growth in the KCOG region would result in decreases in ozone precursors but result in slight increases in particulate matter for which SJVAPCD is in non-attainment for (Kern Council of Governments 2018).

Finally, the SBCAG 2050 RTP/SCS's (called Connected 2040) Programmatic EIR concluded that on-road emissions would decrease within the SBCAG region by 2050, therefore resulting in a less-than-significant impact. Santa Barbara County is in non-attainment for state 8-hour ozone and state PM10 standards, therefore, SBCAG would reduce pollutants for which the area is in non-attainment (Santa Barbara County Association of Governments 2017a).

Pursuant to the USEPA's Transportation Conformity Regulations, the regional emissions tests are met if plan emissions are within the applicable emissions budgets for each nonattainment or maintenance area for all milestone, attainment, and planning horizon years and, if no emissions budgets have been established, if Plan emissions are less than the no-build emissions or the base-year emissions. The emissions budgets that were established in the AQMPs/SIPs in the SCAG region and have been approved by the USEPA function as the applicable emission budgets for the conformity analysis for the respective nonattainment and maintenance areas. Federal conformity regulations also require the regional emissions analysis to be based on the Latest Planning Assumptions that include the latest vehicle data (fleet, age, activity) and latest socioeconomic growth forecast. A conformity determination must be made for each nonattainment and maintenance area in the region. In addition to the regional emissions analysis, the Plan is also required to pass (1) the timely implementation of the TCM test, (2) the Financial Constraint test, and (3) the Interagency Consultation and Public Involvement test. The regional emissions analysis serves as a reasonable analysis of cumulative air quality impacts of the Plan. Connect SoCal 2024 meets the regional emissions tests for each nonattainment and maintenance area and for all milestone, attainment, and planning horizon years.

¹⁸ The area north of San Bernardino County is a non-MPO, rural area.

The Plan will meet the targets and emissions reduction milestones for on-road mobile source emissions set in each of the AQMPs/SIPs within the SCAG region and are in compliance with federal conformity requirements. Additionally, implementation of the Plan will reduce on-road mobile criteria air pollutants and thus reduce the overall health effects to the surrounding community. Total emissions within the SCAB region, which makes up a large portion of the SCAG area, are expected to decrease as well through 2037 according to the 2022 AQMP with the exception of negligible change in PM_{2.5} and SO_x. Reductions in ROG, NO_x, and CO are consistent with the RTP/SCS for the SANDAG, KCOG, and SBCAG planning areas. The KCOG and SANDAG region are also anticipated to result in increases in particulate matter in the future. However, because emissions would increase in some counties, largely as a result of increased total VMT, and SO_x would increase in the region at least through 2037, the SCAG region would add to emissions of neighboring MPO's. Moreover, as discussed in Impact AQ-2, individual project emissions may result in significant construction and/or operational emissions as compared to thresholds of significance identified by each air district. Therefore, the Plan could contribute to cumulative impacts from adjacent MPO's. This impact is considered significant, and mitigation is required.

SUMMARY

Total emissions in the SCAB region (as indicated in 2022 AQMP) and likely across the SCAG region are expected to generally decline through at least 2037 except for negligible changes in PM_{2.5} and SO_x (Table 3.3-13). SCAG is responsible for assessing on-road mobile source emissions through 2050. In general, in 2030, 2040, and 2050, when compared to existing conditions, on-road Mobile source emissions would decrease (see Table 3.3-14).

While certain counties in the SCAG region may see an increase in on-road mobile source PM₁₀ emissions (Imperial, and Riverside Counties, see Table 3.3-14), the SCAQMD, AVAQMD, ICAPCD, and MDAQMD have not established regional thresholds to determine significance. The air districts within the SCAG region have only established project-level significance thresholds (see Table 3.3-9, Table 3.3-10, and Table 3.3-11). Therefore, individual projects must compare anticipated project emissions to the thresholds for the air district within which they are located in order to determine significance on the project-level. Because mobile source emissions of particulate matter may increase (on-road mobile source PM₁₀ emissions would increase in Imperial and Riverside Counties), largely as a result of increased total VMT, the Plan could contribute to an air quality violation. Further, there is the potential for individual projects to exceed local standards during construction and/or operation for several pollutants. Therefore, this impact is considered to be significant.

HEALTH IMPLICATIONS

In accordance with the *Sierra Club v. County of Fresno* (i.e., *Friant Ranch*) decision, when air quality impacts are found to be significant, the health implications of the significant emissions should be disclosed. Modeling and analyzing health consequences requires a substantial amount of data. A detailed HRA of on-road mobile source emissions was undertaken for the Plan (see discussion of Impact AQ-4 below).

The main health concerns associated with PM₁₀ and PM_{2.5} exposure (such as from vehicle exhaust or windblown dust events) include worsening of symptoms in sensitive patients with respiratory disease and excess seasonal declines in pulmonary function, especially in children. This can include an increase in the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates, and nitrates can cause lung damage directly. These substances can be absorbed into the blood stream and cause damage elsewhere in the body. These substances can transport absorbed gases, such as chlorides or ammonium, into the lungs and cause injury. Whereas PM₁₀ tends to collect in the upper portion of the respiratory system, PM_{2.5} is much smaller and it can

penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility. Table 3.3-8 indicates that the applicable PM₁₀ and PM_{2.5} State standards were exceeded multiple times between 2019 and 2021. The Plan's increase in PM₁₀ and PM_{2.5} emissions could worsen the health concerns listed above or result in Air Quality Index values that are unhealthy for sensitive groups and other populations. On unhealthy days, persons are recommended to avoid both prolonged and heavy-exertion outdoor activities (USEPA 2014b).

Exposure to high concentrations of NO₂ can irritate airways in the human respiratory system. Such exposures over short periods can aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms (such as coughing, wheezing or difficulty breathing), hospital admissions and visits to emergency rooms. Longer exposures to elevated concentrations of NO₂ may contribute to the development of asthma and potentially increase susceptibility to respiratory infections (USEPA 2023g). People with asthma, as well as children and the elderly are generally at greater risk for the health effects of NO₂ (USEPA 2023g). As noted in the 2022 AQMP, studies related to outdoor exposure have found health effects associated with ambient NO₂ levels include respiratory symptoms, respiratory illness, decreased lung function, pulmonary inflammation, increased emergency room visits for asthma, and cardiopulmonary mortality (SCAQMD 2022d). In addition, NO₂ exposure can harm vegetation and crops and NO₂ can interact with water, oxygen and other chemicals in the atmosphere to form acid rain. Acid rain harms sensitive ecosystems such as lakes and forests (USEPA 2023g). Table 3.3-8 indicates that the applicable NO₂ federal and state standards were exceeded multiple times between 2019 and 2021 for the SCAB and MDAB. The Plan's increase in NO₂ emissions could worsen the health concerns listed above or result in Air Quality Index values that are unhealthy for sensitive groups and other populations. On unhealthy days, persons are recommended to avoid both prolonged and heavy-exertion outdoor activities (USEPA 2014b).

As noted earlier, NO_x and ROG are ozone precursors and the SCAG region is currently in nonattainment for PM_{2.5}, PM₁₀, and ozone under NAAQS and CAAQS. The main health concern regarding exposure to ground-level ozone is its effects on the respiratory system, particularly on lung function. Several factors influence these health impacts, including the concentration of ground-level ozone in the atmosphere, the duration of exposure, the average volume of air breathed per minute, the length of intervals between short-term exposures; and the sensitivity of the person to the exposure (The World Bank Group 1999; USEPA 2015).

The SCAQMD, in its amicus brief to the California Supreme Court in *Friant Ranch*, stated that from a scientific standpoint, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels over an entire air basin, and provided evidence from its 2012 AQMP that showed that if the daily emissions of NO_x and ROG were reduced in amounts of 432 and 187 tons per day respectively, the ozone concentrations at SCAQMD's monitoring site would go down by only 9 ppb as compared to ozone readings without these ROG and NO_x reductions (SCAQMD 2015b). For all these reasons, it is difficult to estimate the change in ozone concentrations that would result from the decrease in ozone precursors (ROG and NO_x). Table 3.3-13 demonstrates there will be overall decreases in ROG and NO_x from mobile and stationary sources in the SCAB region. Therefore, it can be assumed that the total amount of ozone would also decrease, however the exact amount cannot be accurately quantified.

Both ozone and particulate matter are known to have negative public health impacts especially for sensitive populations, like children, the elderly, and those with respiratory or cardiovascular health problems. Therefore, the potential for Connect SoCal 2024 to adversely affect public health was evaluated using cancer risk from diesel particulate matter as a proxy for respiratory health (see Appendix B-2). Similarly, the analysis acknowledges

applicable California legislation and initiatives to improve public health, particularly respiratory health in light of *Research Results on Land Use, Transportation, and Community Design* (Active Living Research. 2011):

Residents in walkable neighborhoods are more likely to meet physical activity guidelines. Public transit users are more likely to meet Surgeon General recommendations for physical activity. Greater health benefits can be achieved by increasing the amount (duration, frequency, or intensity) of physical activity.

Connect SoCal 2024 promotes increased active transportation opportunities in communities and 15-minute communities, as these projects provide opportunities for physical activity such as walking and biking and where residents can access their most basic, day-to-day needs with a 15-minute walk, bike ride, or roll. These transportation investments and land use strategies are supportive of improving chronic disease rates (SCAG 2020b). Consistent with the equity analysis in Connect SoCal 2024, this PEIR considers the potential benefits and impacts on sensitive receptors including low-income and minority populations located in the vicinity of transportation facilities (e.g., the potential to increase or decrease diesel particulate emissions).

ROG and NO_x emissions contribute to the development of ozone; therefore, reductions of ROG and NO_x emissions would also lead to a reduction in ozone. Excess NO_x emissions can also lead to increases in physician and emergency room visits as well as hospitalization and more school days missed by school-aged children living in the air basin. Implementation of Connect SoCal 2024, when compared to existing conditions, would decrease on-road mobile source ROG and NO_x emissions (Table 3.3-14). Additionally, within the SCAB area NO_x emissions are anticipated to decrease through at least 2031 from off-road vehicle and stationary sources (Table 3.3-15 and Table 3.3-16). This is supported by the NO₂ air dispersion modeling conducted for the Plan and discussed under Impact AQ-3 (see Table 3.3-19).

Through at least 2037, ROG emissions are expected to decrease from off-road vehicle emissions (Table 3.3-15) but will increase from stationary sources (Table 3.3-16). Overall, the total ROG and NO_x emissions from on-road, off-road vehicle, and stationary sources are expected to decrease in the SCAB area through at least 2037 (Table 3.3-13). SCAB was re-designated as in attainment of federal standards for CO in June 2017 and the last exceedance of state standards within the region for CO was in 2015. CO presents a significant health risk as it can interfere with oxygen transport within the body. Compared to existing conditions, mobile source CO emissions in the future with implementation of Connect SoCal 2024 would decrease between now and 2050 despite increasing traffic, as a result of stringent emissions controls (Table 3.3-14).

In recent years, SO₂ concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO₂ and limits on the sulfur content of fuels. SO₂ is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO₂ can also yellow plant leaves and erode iron and steel. Compared to existing conditions, mobile source SO_x emissions would not change substantially despite increasing traffic (Table 3.3-14). Most of the counties within the SCAG region are emitting negligible amounts of on-road mobile source SO_x; however, the AQMP does indicate that SO_x (primarily from ship-related emissions) is not expected to increase at least through 2037 (see Table 3.3-13).¹⁹

¹⁹ Los Angeles County is estimated to emit approximately 1-ton SO_x annually under existing conditions and will continue to emit 1-ton annually in 2040 with implementation of the Plan.

The 2022 AQMP undertook a detailed evaluation of health effects associated with emissions in the SCAB, building from the analysis performed in the 2016 AQMP. That evaluation is contained within Appendix I of the Final 2022 AQMP (and is hereby incorporated by reference). It concludes the following:

A large body of scientific evidence shows that the adverse impacts of air pollution on human and animal health are clear. A considerable number of population-based and laboratory studies have established a link between air pollution and increased morbidity and, in some instances, premature mortality. Importantly, the health effects of air pollution extend beyond respiratory effects, and there is substantial evidence that air pollution (including particulate matter and ozone) exposures cause cardiovascular morbidity and mortality. Some air pollutants, such as diesel PM, lead, and several other air toxics, have been linked to increased cancer risk. Health studies have also identified populations who may be more susceptible to the adverse effects of air pollution, such as children, older adults, low SES communities, people with certain pre-existing health conditions, and people with certain genetic factors. Understanding the impacts of air pollution on these more susceptible populations can help inform policies that better protect public health, for example, in setting standards for criteria air pollutants, and in the development of methods to evaluate air toxics health risks. Continued research on the effects of specific PM constituents and ultrafine particles will be important in furthering the understanding of how these pollutants affect human health.

As the scientific methods for the study of air pollution health effects have progressed over the past decades, adverse effects have been shown to occur at lower levels of exposure. For some pollutants, no clear thresholds for effects have been demonstrated. The new findings have, in turn, led to the revision and lowering of National Ambient Air Quality Standards (NAAQS) which, in the judgment of the Administrator of the U.S. EPA, are necessary to protect public health. Chapter 8 of the 2022 AQMP provides an overview of the extensive, multi-year, public process involved in setting federal air quality standards. Assessments of the scientific evidence from health studies is an important part of the process and has helped inform revisions to the federal air pollution standards (U.S. EPA, Process of Reviewing the National Ambient Air Quality Standards). Figures I-12 and I-13 are meant to convey some of the historical context to recent revisions to the NAAQS for ozone and for particulate matter, regarding key developments in the understanding of the health effects of these pollutants.

The Plan evaluates potential health incidences based on the SCAG Scenario Planning Model (SPM). More information is provided in the Connect SoCal 2024 Performance Monitoring Technical Report; however, in all of the parameters identified, the Plan moves in positive directions for health incidences.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM GHG-1, SMM GHG-2.

SMM-AQ-1 SCAG shall continue to support and provide information on regional air quality planning and related issue areas in the region. SCAG staff shall also continue to work with the U.S. Environmental Protection Agency, California Air Resources Board, and the air districts within the SCAG region and provide updates to relevant stakeholders on regional air quality planning and related issue areas through regional collaboration forums such as SCAG's Transportation Conformity Working Group.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-AQ-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to violation of air quality standards as well as cumulatively considerable increase of criteria pollutants, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT AQ-3 **Expose sensitive receptors to substantial pollutant concentrations.**

Significant and Unavoidable Impact – Mitigation Required

CONSTRUCTION-RELATED EMISSIONS

Over the lifetime of the Plan numerous transportation projects and land use development projects would be implemented. The construction of these projects could expose sensitive receptors to substantial pollutant concentrations. The greatest potential for exposure to substantial pollutant concentrations and TAC emissions during construction of both transportation projects and anticipated development, would be DPM emissions associated with heavy-duty equipment operations and truck traffic during construction activities. According to the SCAQMD methodology, health effects from carcinogenic air toxics are described in terms of individual cancer risk. "Individual Cancer Risk" is the likelihood that a person continuously exposed to concentrations of TACs over a 70-year lifetime will contract cancer based on the use of standard risk assessment methodology. SCAQMD, VCAPCD, MDAQMD, and AVAQMD has stated that the incremental cancer risk should not exceed an incremental increase of 10 excess cancer cases per million, and the chronic and acute non-carcinogenic risks should not exceed a calculated Hazard Index (HI) value of 1.0.

OEHHA published a guidance manual in 2015 to assist the preparation of health HRAs for carcinogenic and non-carcinogenic exposures to air toxics in accordance with the Air Toxics Hot Spots Information and Assessment Act (OEHHA 2015). The 2015 OEHHA HRA guidelines provide methodologies for assessing various types of environmental exposures to toxic contaminants, including inhalation exposures. The 2015 OEHHA HRA guidance relied upon a comprehensive review of the most up-to-date scientific literature to formulate the recommended exposure estimation methodologies. The OEHHA guidance acknowledges that children are especially susceptible to the effects of toxic air contaminant exposure, and incorporated age sensitivity factors (ASFs) and age-specific daily breathing rates (DBRs) to account for the differences in sensitivity to carcinogens during early life exposure. OEHHA recommends a default ASF of 10 for the age range between the third trimester of pregnancy through two years, and an ASF of three for ages two through 15 years.

As a conservative measure to characterize maximum potential exposures of sensitive receptors to carcinogenic risks, residential exposures are assumed to begin in the third trimester and exposures of children at schools is anticipated to begin at the lowest educational grade level. The OEHHA guidance provides recommended DBR values that are specific to the age of the receptor and the type of activity in which the receptor would be engaged during exposure, which are evaluated on a case-by-case basis.

The specific size and location of future construction activity within the SCAG region is not known, and therefore many variables related to characterizing potential exposures to air toxics during construction activities could not be determined, such as proximity to the emissions sources and duration of exposure. The Plan's Project List (see Connect SoCal 2024 Project List Technical Report) includes transportation projects through 2050; however, a construction HRA would be speculative given the lack of a construction location and construction activities. However, it is reasonable to assume that some level of construction activity would occur adjacent to sensitive receptors (e.g., residences and schools). The significant construction emissions identified above could result in adverse health effects to sensitive receptors. As such, it is likely that intense construction activities (e.g., from development projects that involve a high volume of haul trucks) would exceed the health risk significance thresholds due to equipment and truck exhaust emissions. This is considered a significant impact related to substantial pollutant concentrations during construction activities.

SCAQMD LOCALIZED SIGNIFICANCE THRESHOLDS

Among the five air districts in the SCAG region, the SCAQMD provides guidance for conducting the CEQA air quality analysis of localized emissions in their *Localized Significance Threshold Methodology* (SCAQMD 2008), which relies on on-site mass emission rate screening tables and project-specific dispersion modeling typically for sites sized one, two, and five acres. The AVAQMD, MDAQMD, VCAPCD, and ICAPCD do not have a similar CEQA guidance to that of the SCAQMD's localized significance thresholds.

The SCAQMD has established screening criteria that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance thresholds (LSTs) and therefore not cause or contribute to an exceedance of the applicable ambient air quality standards without project-specific dispersion modeling. The screening criteria depend on (1) the area in which a project is located, (2) the size of a project area, and (3) the distance between a project area and the nearest sensitive receptor. The localized significance thresholds are applicable to NO_x, CO, PM₁₀, and PM_{2.5}. The SCAQMD *Localized Significance Threshold Methodology* (SCAQMD 2008) provides screening localized significance thresholds for projects up to five acres in size located up to 500 meters of the nearest sensitive receptors. Should individual projects exceed applicable screening level thresholds in the SCAQMD *Localized Significance Threshold Methodology* (or successor guidance document), project-specific dispersion modeling may be conducted to demonstrate that no exceedance of the concentration-based thresholds (from which the screening tables are derived) would occur (SCAQMD 2008).

For the analysis of potential impacts on sensitive receptors, the four different construction scenarios discussed in Section 3.3.3, *Environmental Impacts*, under *Methodology*, above, and evaluated in Impact AQ-2 above for total emissions (low-end, low mid-range, high mid-range and high-end) were analyzed for three locations within the jurisdiction of the SCAQMD: Los Angeles County, Orange County, and Riverside County for the same years as analyzed above (2025, 2032, 2037, and 2050). To analyze LST impacts, the on-site portion of total emissions of the applicable localized pollutants are taken from the CalEEMod files used in the regional emissions analysis above (as noted above the CalEEMod results are contained in Appendix B-1 to this PEIR). To simplify the presentation here the construction scenario for Los Angeles County, is presented below. The analysis of construction scenario emissions in Los Angeles County is representative of emissions in the other areas. The localized significance

thresholds are based on locations, so a representative “worst-case” source receptor area was used for each of the three counties to determine comparative emissions thresholds. The “worst-case” source receptor area is comprised of the lowest mass emission threshold from all listed source receptor areas in Los Angeles County for each of the 1-acre, 2-acre, and 5-acre project sizes. A distance of 25 meters to the nearest sensitive receptor was conservatively assumed. The low-end scenario can be compared to the 1-acre LST, the low mid-range scenario can be compared to the 2-acre LST, and the high mid-range and high-end scenarios can be compared to the 5-acre LST (**Table 3.3-17, Representative Construction Localized Emissions Summary for Sensitive Receptor Distance within 25 Meters (lbs/day), Los Angeles County, SCAQMD**). The LST analyses for Orange County and the portions of Riverside County and San Bernardino County within the SCAQMD are similarly presented in Appendix B-1 of this PEIR.

TABLE 3.3-17 Representative Construction Localized Emissions Summary for Sensitive Receptor Distance within 25 Meters (lbs/day), Los Angeles County, SCAQMD

REPRESENTATIVE MODELING SCENARIO AND YEAR	CONSTRUCTION			
	NOX LST (LBS/DAY)	CO LST (LBS/DAY)	PM10 LST (LBS/DAY)	PM2.5 LST (LBS/DAY)
1 Acre/Low-End Scenario				
Year 2025	18.56	21.27	3.93	1.91
Year 2032	12.80	19.92	3.59	1.60
Year 2037	10.80	18.75	3.46	1.48
Year 2050	7.32	17.08	3.28	1.32
Worst-Case Source Receptor Area Threshold (Los Angeles County, SCAQMD)	46	231	4	3
2 Acre/Low Mid-Range Scenario				
Year 2025	38.85	40.57	7.52	3.32
Year 2032	26.30	37.06	6.89	2.75
Year 2037	21.46	34.19	6.60	2.47
Year 2050	13.74	29.42	6.22	2.13
Worst-Case Source Receptor Area Threshold (Los Angeles County, SCAQMD)	65	346	6	4
5 Acre/High Mid-Range and High-End Scenarios				
Year 2025	83.51	78.41	27.06	10.46
Year 2032	57.92	68.38	25.87	9.37
Year 2037	46.74	60.18	25.23	8.78
Year 2050	28.18	47.26	24.33	7.95
Worst-Case Source Receptor Area Threshold (Los Angeles County, SCAQMD)	98	630	11	6

Source: SCAQMD 2009

Table Note: Bold values indicate exceedance of the worst-case source receptor area threshold.

It should be noted that all construction emissions were assumed to occur onsite for the purpose of this analysis. However, the worst-case emissions and LSTs demonstrate that the construction of individual projects within the Plan area have the potential to result in significant impacts, particularly for localized emissions of PM10 and PM2.5. While the construction scenario modeling indicates no exceedance of the localized NOx LSTs, projects with intense construction activities and/or large scale projects located in highly-urbanized regions; however, project-level analyses may be necessary for larger projects on a case-by-case basis for NOx emissions. Similarly, while it is unlikely that construction of individual projects within the Plan area would result in significant impacts for localized emissions of CO; however, project-level analyses may be necessary for larger projects on a case-by-case basis for CO emissions.

OPERATIONAL-RELATED ON-ROAD MOBILE SOURCE EMISSIONS

On-road mobile source emissions have the potential to expose sensitive receptors to substantial pollutant concentrations, including DPM and NO2.

OPERATIONAL LOCALIZED SIGNIFICANCE THRESHOLDS

Operational LSTs were not analyzed for this Plan because emissions from operational sources were analyzed on a region-wide basis and not on a localized basis. Potential future land-use projects resulting from the Plan are unlikely to have large quantities of onsite emissions to result in a significant localized impact. Nonetheless, should individual projects within the SCAQMD's jurisdiction exceed applicable screening level thresholds in the SCAQMD *Localized Significance Threshold Methodology* (or successor guidance document), project-specific dispersion modeling may be conducted during the project's environmental review process to demonstrate if an exceedance of the concentration-based thresholds (from which the screening tables are derived) would occur (SCAQMD 2008). The AVAQMD, MDAQMD, VCAPCD, and ICAPCD do not have a similar CEQA guidance to that of the SCAQMD's localized significance thresholds.

The potential impacts from NOx emissions from the Plan as it pertains to operational LSTs are analyzed in the NO2 air dispersion modeling, discussed below, and compared to the NAAQS for significance determinations. The potential impacts from diesel particulate matter are analyzed in the cancer risk analysis, below. As previously demonstrated, trends in operational emissions are meeting the objectives of the Plan.

CANCER RISK

Mobile source (heavy-duty truck) diesel emissions, specifically DPM, are the primary source of health risk concern in most urban areas. Mobile DPM emissions in the SCAG region are anticipated to decrease as compared to existing conditions. Additionally, from 2018 to 2037, passenger and light-duty truck PM2.5 emissions are expected to remain relatively constant, while heavy-duty truck PM2.5 emissions continuously decrease (SCAQMD 2022a). As a result, existing sensitive receptors would be exposed to lower concentrations of TACs in the future. Sensitive receptors include residences, schools, medical facilities, senior centers, nursing homes, and similar uses. CARB recommends that local governments avoid locating new sensitive land uses within 500 feet of freeways as discussed in the Regulatory Framework above (see Section 3.3.1, *Definitions*).

Consistent with CARB recommendations, it is anticipated that local governments would consider potential health risk concerns when new growth is located within 500 feet of freeways and/or address those concerns through appropriate design requirements, health risk reduction strategies, or comparable mitigation measures. For example, in the City of Los Angeles, all new mechanically ventilated buildings located within 1,000 feet of freeways

are required to install air filtration media that provides a MERV of 13.²⁰ In addition, properties within 1,000 feet of freeways within the City of Los Angeles are subject to an advisory notice regarding adverse health impacts resulting from chronic exposure to vehicle exhaust and particulate matter. The notice indicates that all applicants filing for a discretionary action within 1,000 feet of a freeway must adhere to design guidelines regarding freeway proximity, including (a) avoiding locating sensitive uses such as schools, day-care facilities and senior centers; (b) locate occupied open space away from freeway sources; (c) prioritize non-habitable spaces (e.g., parking) nearest the freeway; and (d) screen the site with substantial vegetation and or wall/barrier (City of Los Angeles Department of City Planning 2018). The City of Los Angeles also has numerous general plan policies related to air emissions and health and has announced the City of Los Angeles Green New Deal, which includes goals that would reduce on-road mobile source emissions (see Section 3.6, *Energy*). In addition, SCAQMD reviews and may provide comments recommending health risk reduction strategies on CEQA documents for projects that are located within 500 feet of freeways (SCAQMD 2023h).

Nonetheless, new sensitive receptors could be developed within 500 feet of freeways and lanes may be added to freeways that result in widenings that bring freeway lanes in closer proximity to existing sensitive receptors. To assess the public health risks associated with emissions from major roadways, an HRA was prepared for Connect SoCal 2024 and is included in Appendix B-2. An HRA evaluating the cancer risk from the transportation emissions in the SCAG region provides estimated cancer risk to the most impacted sensitive groups from a large sector of pollutants (transportation). An evaluation of the total emissions to sensitive receptors is not feasible because detailed data regarding all other sources of emissions is not available for 2050; see the discussion of the 2022 AQMP health effects appendix in Impact AQ-2.

According to the SCAQMD's most recent MATES-V study, the SCAQMD region has a population weighted cancer risk ranging from 585 to 842 per million for both stationary and mobile sources (SCAQMD 2021). It should be noted that the MATES V study evaluated the risk focusing on measurements during 2018 and 2019, and the results of the MATES V study resulted in a 40 percent decrease in cancer risk compared to the MATES IV study that evaluated the risk from 2012 to 2013 (SCAQMD 2021). Similar to the MATES-IV study, the highest concentration of DPM was simulated to occur at the Ports of Los Angeles and Long Beach in the MATES-V study (SCAQMD 2021). According to CARB, DPM emissions account for approximately 70 percent of the known cancer risk related to air toxics in California. Major sources of diesel emissions include ships, trains, and heavy-duty trucks, especially for residents living near ports, railyards, and heavily traveled roadways (CARB 2023e).

As discussed in Section 3.3.2, *Regulatory Framework*, under *Assembly Bill 617*, above, CARB established the CAPP pursuant to AB 617, the focus of which is to reduce exposure in communities most impacted by air pollution. The types of air pollution sources being monitored are unique to each CARB-designated AB 617 community and are determined through the AB 617 program with the community and local air district to identify air quality priorities and actions to reduce air pollution in the community. Data collected from air monitoring can provide valuable information about sources of air pollution, types of pollutants, and air quality impacts in the impacted communities.

The Connect SoCal 2024 HRA evaluates potential carcinogenic health risks from emissions of DPM from motor vehicles on major freeways and transportation corridors. CARB has previously evaluated the risks posed to residential receptors near the Ports of Los Angeles and Long Beach and railyards across the SCAG region, including the four railyards in the City of Commerce, the Union Pacific Railyard in the City of Industry, Union Pacific Los Angeles Transportation Center (LATC) Railyard, and Union Pacific Mira Loma Railyard. According to CARB, port

²⁰ See Los Angeles Municipal Code § 99.04.504.6.

activities (including ship hoteling, cargo handling, and on-port trucking) would result in a cancer risk of over 10 in a million to approximately 1.98 million people, with the nearest receptors exceeding 500 in 1 million cancer risks (CARB 2006a). The Commerce railyards (Union Pacific Commerce Railyard, BNSF Hobart Railyard, BNSF Mechanical Sheila Railyard, and BNSF Commerce Eastern Railyard) will expose approximately 1.29 million people to a cancer risk greater than 10 in a million over a 76,000-acre area (CARB 2007a). Additionally, the City of Industry, LATC, and Mira Loma Railyards are estimated to expose approximately 91,000 residents over 8,300 acres in Industry, 147,000 residents over 9,400 acres in LA, and 7,900 people over 3,000 acres in Mira Loma, respectively, to risks equal or greater to 10 in a million (CARB 2007b, 2007c, 2008). The Connect SoCal 2024 HRA evaluates a remaining major source of DPM emissions, highly traveled roadways.

DPM emissions have been associated with acute and chronic health effects, such as the worsening of heart and lung diseases. Elevated levels of ambient particulate matter have also been identified as one of many aggravating factors for childhood asthma. At levels above the federal and state ambient air quality standards, PM10 and PM2.5 emissions are a health concern. PM2.5 is believed to have greater negative health effects because the smaller particles can penetrate to the deepest parts of the lungs. Diesel exhaust from heavy duty trucks emits a mixture of gaseous and solid air pollutants, the solid pollutants make up DPM. Approximately 90 percent of DPM emissions are less than 1 μm , thus the majority of DPM emissions are a subset of PM2.5 and are small enough to be inhaled into the lungs (CARB 2023e).

A common pollutant of public health concern in AB 617 communities is PM2.5. The efforts under AB 617 in these designated communities are intended to improve air quality, reduce emissions of PM2.5 and as a result lower potential health risk impacts. **Map 3.3-5, SCAG Region AB 617 Community PM2.5 Emissions Improvement**, graphically illustrates the progress of improvements to PM2.5 emissions (as well as PM2.5-related community-wide health risk) in the SCAG region and in AB 617 communities (identified as Priority Equity Communities). The HRA performed in this 2024 PEIR demonstrates that health risk impacts from freeway traffic along the transportation segments will improve over time. Several of the selected transportation segments for the HRA and NO₂ analyses travel through the AB 617 designated communities, including the following:

- #1 IMP I-8 (Calexico, El Centro, Heber)
- #2 IMP SR-78 (North Imperial Phase 1)
- #3 LA I-110 (Wilmington, West Long Beach, Carson)
- #4 LA I-710 (South Los Angeles)

The HRA quantitatively analyzed the potential to expose people to increased cancer and other health risks, based on using the potential for increased cancer risk from diesel particulate matter from heavy-duty diesel trucks traveling on major freeways. Cancer risk is used as a proxy for general respiratory health. Only motor vehicle emissions on freeways were quantitatively evaluated because emissions from other transportation corridors are much less than emissions on major freeways. Additionally, stationary sources were not evaluated as there was insufficient data available to model the health risk posed from these sources. However, it is important to note that cancer risks from stationary sources are evaluated by the applicable air district if air permits are needed.

The HRA shows substantial reductions in DPM and associated health risks (see discussion below). In the future under Plan conditions, as a result of stringent emission controls, DPM and health risk would be reduced substantially as compared to existing conditions.

Implementation of the Plan would result in new transportation projects being developed near existing sensitive receptors or locating new receptors near transportation projects. Sensitive receptors would continue to be exposed to DPM as a result of the Plan. However, as shown in **Table 3.3-18, Summary Maximum Exposed Individual Residential 30-Year Exposure Cancer Risk**, cancer risk would decrease considerably in the future, and local jurisdictions are requiring more robust air filtration and other ways of reducing exposure to existing sources of pollutants in particular in proximity to freeways (see above example regarding the City of Los Angeles).

The declines in cancer risk over time across all freeway segments observed in Table 3.3-18 is the result of continued decreases in per-vehicle mile fleet emissions projected to occur due to continued emission control technology improvements in new vehicles.

TABLE 3.3-18 Summary Maximum Exposed Individual Residential 30-Year Exposure Cancer Risk

SEGMENT NO.	TRANSPORTATION SEGMENT	COUNTY/REGION	EXISTING (2019) CONDITIONS	2050 PLAN
1	IMP I-8	Imperial/El Centro	188	94.9
2	IMP SR-78	Imperial/Westmoreland	131	60.1
3	LA I-110	Los Angeles/Carson	232	118
4	LA I-710	Los Angeles/Compton	340	135
5	LA SR-60 DB	Los Angeles/Diamond Bar	447	146
6	LA SR-60 SEM	Los Angeles/South El Monte	307	86.2
7	ORA I-5	Orange/Orange	306	97.0
8	ORA I-405	Orange/Seal Beach	567	169
9	RIV I-10	Riverside/Banning	87.1	37.6
10	RIV I-15	Riverside/Temecula	98.2	38.9
11	RIV SR-91	Riverside/Corona	373	116
12	SB I-15 ONT	San Bernardino/Ontario	174	65.6
13	SB I-15 VIC	San Bernardino/Victorville	101	40.7
14	SB SR-60	San Bernardino/Ontario	490	182
15	VEN US-101 SB	Ventura/San Buenaventura	217	58.3
16	VEN US-101 TO	Ventura/Thousand Oaks	474	108

Source: Health Risk Assessment (Appendix B-2).

Table Note: Cancer Risk CEQA Significance Threshold is an increase of 10 per 1 million from the Plan.

The methodology for selection of the HRA segments is discussed above based on vehicle volumes as well as consistency with the 2016 RTP/SCS and 2020 RTP/SCS where the same 16 segments were evaluated. Eight of the sixteen segments were also previously evaluated in the 2012 RTP/SCS. This allows for the opportunity to view health risk performance of same segments over time since the adoption of the 2012 RTP/SCS (the first RTP that had the required SCS component). Emissions of DPM from each segment were calculated using VMT data generated by SCAG peer reviewed, activity-based Transportation Demand Model for 2019 and projections for 2050. The potential cancer risk for residences was evaluated for a 30-year exposure, assuming continuous exposure over those time periods (i.e., 24 hours a day, 7 days a week). SCAG VMT data were provided for heavy-duty vehicles

and light/medium-duty vehicles. The most current version of CARB mobile source emissions model (EMFAC2021) was used to obtain emissions factors of PM₁₀ in diesel-fueled vehicles, which were assumed equal to DPM emission factors.²¹

The potential health risk of emissions from a representative 1-mile-long portion of each freeway segment were evaluated with CARB-approved AERMOD dispersion model (Version 22112) and meteorological data obtained from South Coast, Mojave Desert, Imperial, and Ventura Air District monitoring sites. The calculated DPM concentration was then used to calculate the potential carcinogenic risk using the most current OEHHA 2015 guidelines and HARP2 software.

To analyze potential cancer risk with respect to DPM, the threshold of 10 in 1 million identified above is considered. A 30-year exposure cancer risk was used in the analysis below per 2015 OEHHA guidance. According to OEHHA, the 30-year exposure duration should be used to determine the risk characterization (Office of Health Hazard Assessment 2015). The cancer risk estimates are provided in Appendix B-2.

As shown on Table 3.3-18 (also see Appendix B-2), the maximum 30-year exposure to residential cancer risk for each transportation segment is significantly reduced when compared to existing conditions. While the total all vehicle daily VMT would rise in Imperial, Riverside, and San Bernardino Counties between 2019 and 2050 under the Plan (even though per capita VMT is expected to decrease in all counties except in Imperial County—see Table 3.17-15, *VMT per Capita by County 2019, 2030, 2045, and 2050*), the maximum potential cancer risk would be reduced by approximately 50-75 percent when compared to the existing conditions. This is due to the dramatic reductions in emissions that are expected to result from federal and state regulations that require reduced tail pipe emissions from on-road HDDT. It is important to note that despite the reduction in cancer risk compared to existing conditions, the Plan would still result in exposing sensitive receptors to substantial pollutant concentrations, however such emissions would be substantially less compared to existing conditions.

As shown on Table 3.3-18 emissions under the Plan, on all segments, would decrease substantially. Due to the significant reduction in DPM emissions and associated health risk, overall risk is reduced and therefore, impacts from cancer risks are considered less than significant. Additionally, the total health risk (1,553 in 1 million) under the Plan would be less than under existing conditions (4,532 in 1 million).

NITROGEN DIOXIDE

The NO₂ concentrations at near-freeway sensitive receptors was also estimated for all the same 16 freeway segments and scenarios as the HRA (existing conditions and 2050 under Connect SoCal 2024), but also includes year 2030 and 2040, in order to assess potential health impacts from emissions of NO₂ from motor vehicles on major freeways and transportation corridors.

As noted in the SCAQMD's 2022 AQMP, studies related to outdoor exposure have found health effects associated with ambient NO₂ levels include respiratory symptoms, respiratory illness, decreased lung function, pulmonary inflammation, increased emergency room visits for asthma, and cardiopulmonary mortality (SCAQMD 2022d). Short-term respiratory effects related to NO₂ exposure include increased airway responsiveness and asthma attacks for those with asthma when exposed to 100 ppb NO₂ for 60 minutes and to 200 to 300 ppb for 30 minutes (SCAQMD 2022d). For those without asthma, exposure to 500 ppm of NO₂ for more than an hour can cause

²¹ It should be noted the emission factors for particulate matter exhaust at speeds of 65 mph are higher in EMFAC2021 (used in this study) than in EMFAC2014 (used in 2020 PEIR), particularly for on-road heavy-duty vehicles. The EMFAC2021 emission factors were used to calculate emissions for the purpose of the HRA, NO₂, and N₂ deposition analyses in this PEIR.

narrowing of airways with consequent wheezing and shortness of breath (OEHHA 1999). According to the CDC, exposure to 10,000 to 20,000 ppb of NO₂ for any period can cause respiratory system irritation (National Institute for Occupational Safety and Health 1994). More severe health issues occur at higher concentrations of NO₂ where exposures of 210,000 to 352,000 ppb for about 3 minutes or more can lead to immediate dry cough and tightness of the chest and continued respiratory discomfort for hours after exposure (OEHHA 1999). Sustained NO exposure for long periods could be fatal as exposure above 100,000 ppb for a few hours would cause could cause death from pulmonary edema, further it is estimated that 50% lethality would occur following exposure to more than 174,000 ppb for an hour or more (NIOSH 1994; OEHHA 1999). In addition, NO₂ can injure vegetation, including trees, forests, and crops where damaging vegetation has been shown at NO₂ exposure levels of 100 or more hours of at least 200 ppb for 100 hours or longer during the growing season (CARB 2023r).

The analysis of NO₂ concentrations at near-freeway sensitive receptors analyzed the potential to expose people to increased NO₂ and associated health risks from vehicle emissions traveling on major freeways. Similar to the HRA, only motor vehicle emissions on freeways were quantitatively evaluated because emissions from other transportation corridors are much less than emissions on major freeways. In addition, as with the HRA, stationary sources were not evaluated as there was insufficient data available to model the health risk posed from these sources.

As previously discussed, implementation of the Plan would result in new transportation projects being developed near existing sensitive receptors or locating new receptors near such projects, resulting in exposure of sensitive receptors to NO₂ emissions. The same 16 transportation segments were analyzed for a quantitative analysis of the NO₂ concentrations at near-freeway sensitive receptors. Maximum background 1-Hour and annual NO₂ concentrations were gathered for each County from CARB's "Top 4 Summary" data (CARB, 2023h). Modeled concentrations from freeway traffic contributions were added to the corresponding county background NO_x concentrations.

As shown in **Table 3.3-19, Maximum 1-Hour NO₂ Concentrations at Near-Freeway Sensitive Receptors**, maximum hourly NO₂ concentrations exceed the NAAQS 1-hour NO₂ 100 ppb standard under existing conditions, which as discussed above, could result in short-term respiratory effects related to NO₂ exposure such as increased airway responsiveness and asthma attacks for those with asthma. However, the modeling analysis shows that the NO₂ concentrations under the Plan would decrease substantially in the future and would not exceed the NAAQS 1-hour NO₂ 100 ppb standard, thus would lessen potential health effects associated with exposure to NO₂. The Plan would improve and be protective of human health and public welfare as established by the Primary and Secondary NO₂ NAAQS.

As shown in **Table 3.3-20, Maximum Annual NO₂ Concentrations at Near-Freeway Sensitive Receptors**, maximum annual NO₂ concentrations under existing conditions and future (2050) conditions under the Plan are not expected to exceed the NAAQS annual NO₂ 53 ppb standard. In addition, the modeling analysis shows that the annual NO₂ concentrations would decrease substantially in the future under the Plan, thus lessening potential health effects associated with exposure to NO₂. The Plan would be protective of human health and public welfare as established by the Primary and Secondary NO₂ NAAQS.

In Appendix I, *Health Effects*, of the SCAQMD's 2022 AQMP, SCAQMD discussed a 2016 health study by the USEPA. The study found that when adults with asthma were exposed to NO₂ at the 100 ppb to 300 ppb concentrations, they experienced an increase in airway responsiveness, which in asthmatics could worsen symptoms and reduce lung function (SCAQMD 2022d). Based on the air dispersion modeling performed for the Plan and the modeling

results shown in Table 3.3-19 and Table 3.3-20 above, none of the 16 freeway segments would result in NO₂ concentrations of greater than 100 ppb during operation.

TABLE 3.3-19 Maximum 1-Hour NO₂ Concentrations (ppb) at Near-Freeway Sensitive Receptors

SEGMENT NO.	TRANSPORTATION SEGMENT	COUNTY/REGION	EXISTING (2019) CONDITIONS	2050 PLAN
1	IMP I-8	Imperial/El Centro	75.6	63.9
2	IMP SR-78	Imperial/Westmoreland	77.8	61.5
3	LA I-110	Los Angeles/Carson	106.2	88.3
4	LA I-710	Los Angeles/Compton	118.2	89.6
5	LA SR-60 DB	Los Angeles/Diamond Bar	141.3	93.8
6	LA SR-60 SEM	Los Angeles/South El Monte	113.6	86.3
7	ORA I-5	Orange/Orange	83.4	60.7
8	ORA I-405	Orange/Seal Beach	117.0	68.6
9	RIV I-10	Riverside/Banning	69.7	58.5
10	RIV I-15	Riverside/Temecula	82.6	61.9
11	RIV SR-91	Riverside/Corona	116.0	69.7
12	SB I-15 ONT	San Bernardino/Ontario	101.3	81.2
13	SB I-15 VIC	San Bernardino/Victorville	97.5	80.6
14	SB SR-60	San Bernardino/Ontario	135.3	87.8
15	VEN US-101 SB	Ventura/San Buenaventura	60.1	39.3
16	VEN US-101 TO	Ventura/Thousand Oaks	59.7	39.2
NAAQS (ppb):			100	100
Does any segment exceed?			YES	No

Source: Health Risk Assessment (Appendix B-2).

Table Note: The NAAQS for the 1-hour NO₂ standard is 100 ppb. The results presented are in units of ppb and compared to the NAAQS for significance determination.

TABLE 3.3-20 Maximum Annual NO₂ Concentrations (ppb) at Near-Freeway Sensitive Receptors

SEGMENT NO.	TRANSPORTATION SEGMENT	COUNTY/REGION	EXISTING CONDITIONS	2050 PLAN
1	IMP I-8	Imperial/El Centro	16.9	13.1
2	IMP SR-78	Imperial/Westmoreland	14.7	11.3
3	LA I-110	Los Angeles/Carson	34.3	26.9
4	LA I-710	Los Angeles/Compton	39.0	27.4
5	LA SR-60 DB	Los Angeles/Diamond Bar	43.9	27.8
6	LA SR-60 SEM	Los Angeles/South El Monte	38.4	26.3
7	ORA I-5	Orange/Orange	32.4	21.9
8	ORA I-405	Orange/Seal Beach	42.5	23.8
9	RIV I-10	Riverside/Banning	18.1	15.6
10	RIV I-15	Riverside/Temecula	28.3	18.5
11	RIV SR-91	Riverside/Corona	32.3	18.6
12	SB I-15 ONT	San Bernardino/Ontario	37.0	31.3
13	SB I-15 VIC	San Bernardino/Victorville	33.7	30.5
14	SB SR-60	San Bernardino/Ontario	49.6	33.5
15	VEN US-101 SB	Ventura/San Buenaventura	15.6	8.6
16	VEN US-101 TO	Ventura/Thousand Oaks	14.5	8.4
NAAQS (ppb):			53	53
Does any segment exceed?			No	No

Source: Health Risk Assessment (Appendix B-2).

Table Note: The NAAQS for the annual NO₂ standard is 53 ppb. The results presented are in units of ppb and compared to the NAAQS for significance determination.

NITROGEN DEPOSITION

As previously discussed, nitrogen deposition occurs as a result of the combustion of fossil fuels and corresponding emissions of nitrogen-based pollutants. Increases in nitrogen deposition can lead to soil and water acidification, plant nutrient imbalances, declines in plant health, changes in species composition, increases in invasive species and increased susceptibility to secondary stresses. Total nitrogen deposition includes wet and dry oxidized and reduced nitrogen. Wet deposition is when rain, snow, or fog carries gases and particles to the earth's surface. Dry deposition is when gases and particles are carried to the surface in the absence of rain, snow, or fog.

There is no technical guidance on how to conduct nitrogen deposition analysis for CEQA purposes from air districts within the SCAG region. For the purposes of this PEIR, SCAG assumed that the primary driver of nitrogen deposition is from the emissions of NO_x and ammonia (NH₃), primarily from gasoline vehicle operations. These emissions were calculated from EMFAC2021 emission factors and VMT from individual segments included in this analysis. Nitrogen deposition is quantified on an annual basis for the same 16 segments by using the wet and dry deposition algorithms in the AERMOD dispersion model. Nitrogen deposition was quantified for Existing (2019) and 2050 Plan. As there is no national or state standard for comparison, nitrogen deposition results in **Table 3.3-21, Maximum Annual**

Nitrogen Deposition at Near-Freeway Sensitive Receptors, are primarily to inform the discussion of health effects and potential impacts on biological resources. See section Methodology, above, for additional details).

TABLE 3.3-21 Maximum Annual Nitrogen Deposition at Near-Freeway Sensitive Receptors

SEGMENT NO.	TRANSPORTATION SEGMENT	COUNTY/REGION	EXISTING (2019) CONDITIONS	2050 PLAN
1	IMP I-8	Imperial/El Centro	0.338	0.150
2	IMP SR-78	Imperial/Westmoreland	0.239	0.104
3	LA I-110	Los Angeles/Carson	0.769	0.305
4	LA I-710	Los Angeles/Compton	1.107	0.346
5	LA SR-60 DB	Los Angeles/Diamond Bar	1.612	0.434
6	LA SR-60 SEM	Los Angeles/South El Monte	1.045	0.258
7	ORA I-5	Orange/Orange	0.875	0.269
8	ORA I-405	Orange/Seal Beach	1.693	0.476
9	RIV I-10	Riverside/Banning	0.215	0.090
10	RIV I-15	Riverside/Temecula	0.950	0.373
11	RIV SR-91	Riverside/Corona	1.525	0.475
12	SB I-15 ONT	San Bernardino/Ontario	0.446	0.146
13	SB I-15 VIC	San Bernardino/Victorville	0.222	0.076
14	SB SR-60	San Bernardino/Ontario	1.193	0.371
15	VEN US-101 SB	Ventura/San Buenaventura	0.934	0.228
16	VEN US-101 TO	Ventura/Thousand Oaks	0.709	0.173

Table Note: Units are in grams per meter-squared per year.

As shown in Table 3.3-21, the deposited amounts of nitrogen would be significantly reduced when compared to existing conditions. While the total all vehicle daily VMT would rise in every county under the Plan (even though per capita VMT is expected to decrease—see Table 3.17-15, *VMT per Capita by County 2019, 2030, 2045, and 2050*), the deposition of nitrogen would be on average approximately 55 to 75 percent less than existing conditions for year 2050.

The nitrogen deposition results provided above are for informational purposes only. It is apparent from the modeling isopleths provided in Appendix B-2 that amounts of nitrogen deposition decreases substantially with increasing distances from the roadways and sources of nitrogen emissions.

PUBLIC HEALTH

In addition to mobile source emissions, multiple social, economic, and lifestyle factors could contribute to the detriment of the region’s public health. Built upon the public health emphasis of previous Plans, Connect SoCal 2024 emphasizes public health.

As indicated in the Connect SoCal 2024 Equity Analysis and Performance Monitoring Technical Reports, poor air quality can also impact non-cancer related health problems including asthma. Additionally, climate change can

lead to increased wildfires and smoke, which in turn degrades the air quality in the region. Increases in PM_{2.5} from wildfires leads to increased hospital visits and mortality (SCAG 2023e, 2023f). This risk persists even after a wildfire is extinguished because particulate matter from fire ash can be picked up by winds.

The USEPA has promulgated the *Secondary National Ambient Air Quality Standards (NAAQS) for Nitrogen Dioxide (NO_x) and Sulfur Dioxide (SO₂)* to focus on public welfare from the effects of criteria pollutant emissions on soils, water, crops, vegetation, manmade materials, animals, wildlife, weather, visibility, and climate, damage to and deterioration of property. In its final rule, the USEPA retained the NO₂ secondary standard, which addresses the direct effects on vegetation of exposure to gaseous oxides of nitrogen and sulfur and did not add new NO₂ secondary standards and did not add new standards to address the effects of nitrogen deposition; however, it acknowledges the contribution of NO_x and NH_x (including ammonia) to nitrogen deposition (Federal Register 2012). The secondary NAAQS for annual NO₂ is the same as the primary NAAQS (a 1-hour secondary NAAQS was not promulgated), which is analyzed through air dispersion modeling discussed above. The analysis above indicates that the Plan would not have significant secondary impacts. As discussed above, nitrogen deposition modeling was also performed and shows substantial reductions in nitrogen deposition in the future (2050) as compared to existing conditions.

SCAG has evaluated social detriments including the community context, availability of health care, neighborhood and surrounding built environment, education, and economic health to see how these factors shape public health. With nearly half of U.S. adults living with a chronic disease, SCAG recognizes improving public health is vital to the community. The Surgeon General promotes increasing physical activity as one strategy to improve public health (U.S. Department of Health and Human Services 2015).

SCAG's statutory responsibility as it relates to air quality is on-road mobile source emissions. Air districts, such as the SCAQMD, are responsible for air quality planning in the region for stationary sources. While air districts have regulatory authority in reducing stationary source pollution by developing and enforcing local rules and regulations within their jurisdictions as well as have subject matter expertise in air quality technical and modeling analysis, air districts must work closely with MPOs, such as SCAG, in order to ensure reductions in mobile source air emissions. For example, SCAQMD's most recent MATES-V study includes a discussion of the health risk in the SCAB region as a result of both stationary and mobile source emissions, including on-road mobile source information obtained from SCAG. As indicated above, the weighted cancer risk from all sources from 2018-2019 ranges from approximately 585 to 842 in 1 million, which is likely to continue to decrease over time. The MATES V study goes on to say that the areas of highest risk include those near the ports, Central Los Angeles, and along transportation corridors (SCAQMD 2021).

While implementation of the Plan would increase total VMT from 2019 to 2050 (see Chapter 4, *Alternatives*, Table 4.17-17, VMT 2019 and 2050 By County), there is a growing support for increasing active transportation investments throughout the communities in the region. These changes can only be met if there is also a change in the built environment that enable people to walk or bike safely in their communities. Proposed land use strategies and transportation investments, such as provision of additional investments in active transportation networks including first mile/last mile improvements, Safe Routes to School projects, and regional bikeways infrastructure are expected to increase the number of short trips, reduce per capita VMT and improve physical activity outcomes. The statewide Affordable Housing and Sustainable Communities (AHSC) program, as noted in the Plan, would improve air quality and reduce greenhouse gas emissions by funding housing and transportation improvements that support infill and compact development thereby reducing VMT (SCAG 2019a).

Connect SoCal 2024 includes regional strategies that would contribute to improving public health by reducing VMT (as well as encouraging increased healthy activities). As discussed in Chapter 2, *Project Description*, these strategies include increased transportation investments in active transportation opportunities and facilities, transit and passenger rail use, and land use strategies that create more opportunities for walking and biking or other physics activities. The Plan projects total all vehicle VMT would only slightly increase from 2019 to 2050, but VMT per capita would decrease.

SUMMARY

Connect SoCal 2024 would provide strategies to improve public health and develop walkable and transit friendly communities. The cancer risk adjacent to freeways would be significantly reduced when compared to existing conditions. The Plan would not exacerbate the health risk compared to existing conditions and therefore the impact of on-road emissions is less than significant.

As discussed above, construction activity would occur adjacent to sensitive receptors. The significant construction emissions identified in Impact AQ-2, could result in adverse health effects to sensitive receptors. As such, it is likely that extended intense construction activities (e.g., from development projects that involve a high volume of haul trucks) would have the potential to exceed the health risk significance thresholds due to offroad equipment and truck diesel particulate matter exhaust emissions. Therefore, the Project could result in exposing sensitive receptors to substantial pollutant concentrations during construction activities, and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-LU-1 through SMM-LU-3, SMM-POP-1, and SMM-POP-2.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-AQ-1.

PMM-AQ-2 Projects subject to California Environmental Quality Act (CEQA) review (i.e., non-exempt projects) and located within the jurisdiction of the South Coast Air Quality Management District (SCAQMD) and within one-quarter mile (1,320 feet) of a sensitive land use shall prepare an air quality analysis that evaluates potential localized project air quality impacts in conformance with SCAQMD methodology for assessing localized significance thresholds (LST) air quality impacts. If air pollutants are determined to have the potential to exceed the SCAQMD-adopted thresholds of significance, the project shall incorporate feasible mitigation measures to reduce air pollutant emissions.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible.

While the mitigation measures will reduce the impacts related to exposure of sensitive receptors to substantial pollutant concentrations, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG’s lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT AQ-4 **Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.**

Significant and Unavoidable Impact – Mitigation Required

Odor sources within the SCAG region, such as wastewater treatment facilities, landfills, and agricultural operations, are controlled by county and city odor ordinances and air district rules that prohibit nuisance odors and identify enforcement measures to reduce odor impacts to nearby receptors. These ordinances and rules are enforced by the air pollution control districts and local law enforcements. For example, SCAQMD, MDAQMD, and AVAQMD Rule 1113; VCAPCD Rule 74.2; and ICAPCD Rules 101 and 424, *Architectural Coatings*, limit the amount of volatile organic compounds from architectural coatings and solvents to further reduce the potential for odiferous emissions. SCAQMD also provides rules to establish odor management practices and requirements from solid waste transfer stations and material recovery facilities in Rule 410, *Odors from Transfer Stations and Material Recovery Facilities* (SCAQMD 2006), and for rendering facilities in Rule 415, *Odors from Rendering Facilities* (SCAQMD 2017c). Additionally, SCAQMD and MDAQMD’s Rule 402 (SCAQMD 1976; MDAQMD 1977); VCAPCD’s Rule 51 (VCAPCD 2004); and IPAPCD’s Rule 407, *Nuisance* (ICAPCD 1999), establishes that no person shall discharge any source of air contaminants that may cause harm or nuisance to the public. In order to hold any facility accountable for nuisance rules, the air quality management districts allow the public to report any air quality problems within the district including odor complaints (SCAQMD 2019, 2023g). As such, the Plan would be required to adhere to these rules, coupled with local air districts’ enforcement on regulatory compliance with these rules and a mechanism for the public to report a complaint about odor, implementation of the Plan would not be expected to result in substantial odor emissions or affect a substantial number of people when compared to existing conditions.

CONSTRUCTION

Construction of transportation projects and land use development encouraged under the Plan have the potential to cause an increase in construction activities in the region. Activities associated with the operation of construction equipment, diesel, the application of asphalt, the application of architectural coatings and other interior and exterior finished, and roofing may produce discernible odors typical of most construction sites. As stated above, SCAQMD, MDAQMD, and AVAQMD Rule 1113; VCAPCD Rule 74.2; and ICAPCD Rules 101 and 424, *Architectural Coatings*, limit the amount of volatile organic compounds from architectural coatings and solvents to further reduce the potential for odiferous emissions. Although these odors could be a source of nuisance to adjacent uses, odors from construction at any individual site are temporary, short-term, and intermittent in nature. Construction-related emissions also decrease with distance from individual project sites and quickly dissipate.

In accordance with federal and state regulations, diesel emissions from heavy-duty trucks are projected to decrease with the Plan (see the HRA in Appendix B-2), and construction activities associated with the Plan would adhere to CARB’s guidelines regarding proximity to sensitive receptors.

LAND USE DEVELOPMENT PROJECTS

The development projects anticipated to occur under the Plan would have the potential to result in nuisance odors. There are certain industries and activities that tend to result in odor complaints during operation. According to the SCAQMD CEQA Air Quality Handbook, land uses and industrial operations that are associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. Any and all of these uses/activities could occur somewhere in the SCAG region under the Plan.

However, development projects would be required to comply with applicable odor regulations, such as SCAQMD, MDAQMD, and AVAQMD Rule 1113; VCAPCD Rule 74.2; and ICAPCD Rules 101 and 424, *Architectural Coatings*; and SCAQMD and MDAQMD Rule 402; VCAPCD Rule 51; and ICAPCD Rule 407, *Nuisance*. The air quality management districts use similar Nuisance rules, which state (SCAQMD 1976; MDAQMD 1977; VCAPCD 2004; ICAPCD 1999):

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons to the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Therefore, most development projects would be required to comply with rules prohibiting nuisance to the public, including odors. The level of exposure and number of receptors affected from potential odor can only be determined through project-level analysis once facility designs of individual projects are available. Therefore, odor impacts related to development would be analyzed at the individual project level. However, since development projects are required to comply with applicable odor regulations, land use development would not be expected to result in substantial odor emissions or affect a substantial number of people when compared to existing conditions.

TRANSPORTATION IMPROVEMENTS

Connect SoCal 2024 includes regional policies and implementation strategies with the aim of fostering air pollution reduction and sustainable development. Some transportation projects that involve roadway expansions or realignments could result in the transfer of vehicle emissions and/or could result in odor emissions sources being located closer to sensitive receptors. In addition, some projects (e.g., rail stations) could result in localized traffic congestion during operation that could incrementally add to odor concentrations. However, the SCAQMD does not indicate that transportation projects are associated with odor complaints. Similar to development projects, transportation projects would be required to comply with applicable odor regulations, such as the SCAQMD and MDAQMD's Rule 402; VCAPCD's Rule 51; and ICAPCD's Rule 407, *Nuisance*. Transportation projects would not be expected to result in substantial odor emissions or affect a substantial number of people when compared to existing conditions.

SUMMARY

As discussed above, implementation of Connect SoCal 2024 would not, under normal circumstances, be expected to result in substantial odor emissions or affect a substantial number of people when compared to existing conditions. However, given the size of and complexity air quality conditions in the region and potential for

unforeseen circumstances to occur through the 2050 Plan horizon, it is possible that construction activities and operation of transportation projects and land use projects could involve activities that generate emissions (such as those leading to odors) adversely affecting a substantial number of people. Such emissions are considered a significant impact, and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-AQ-1, SMM-GHG-1, AND SMM-GHG-2.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-AQ-1.

PMM-AQ-2 In accordance with provisions of sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to other emissions (such as those leading to odors) adversely affecting a substantial number of people. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a) Implement an odor management plan that consistent with the requirements from the local air quality management district or air pollution control district.
- b) Implement an odor control technique(s) or strategy(ies) consistent with the requirements from the local air quality management district or air pollution control district. Odor control techniques or strategies may include air filters, air scrubbers, enclosures, buzzer zones, physical barriers, housekeeping practices, or other techniques or strategies.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

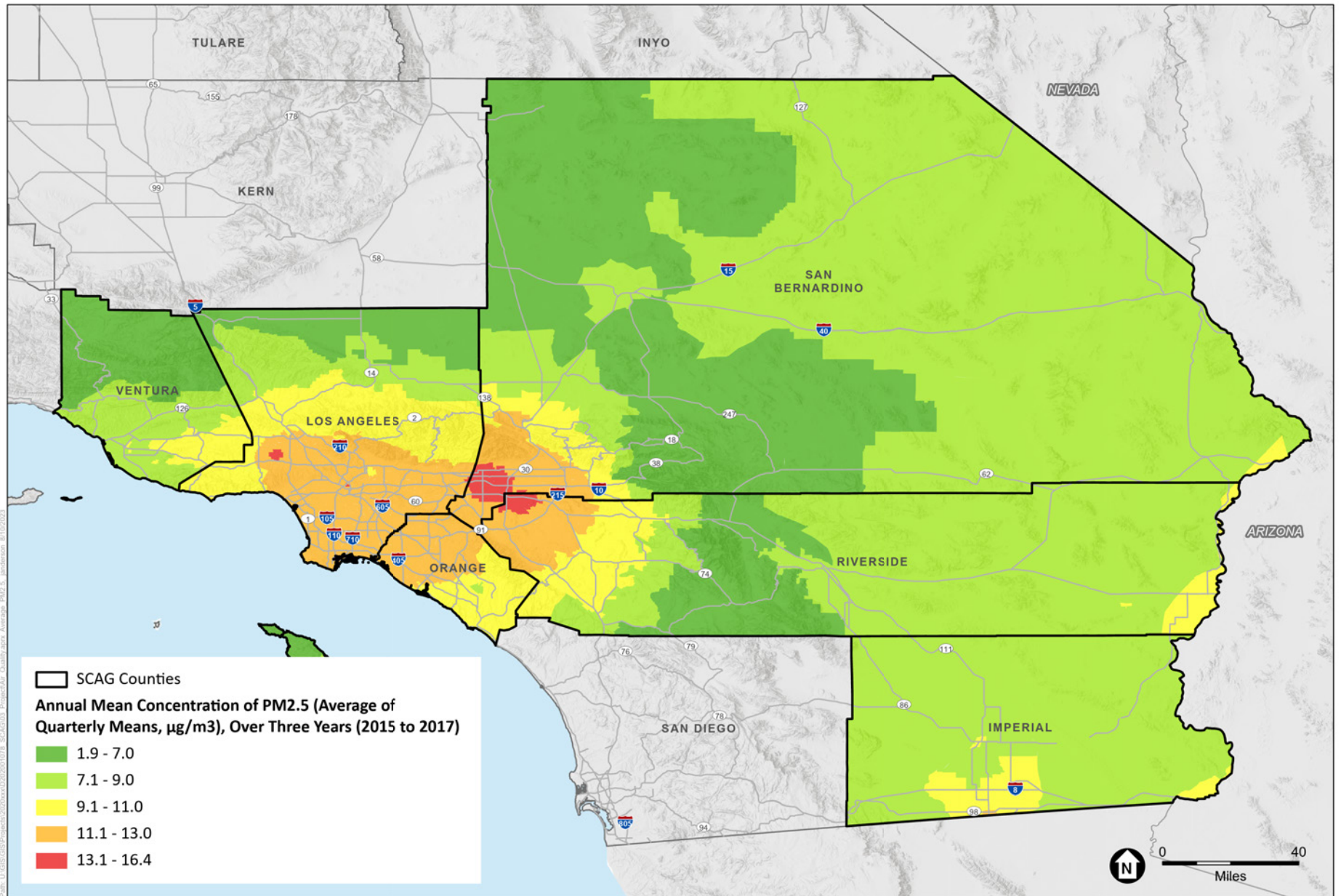
As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to other emissions adversely affecting a substantial number of people, due to the regional nature of the analysis, unknown site conditions and project-specific details, SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of regional policies and strategies, a regional growth forecast and land use pattern, and individual transportation projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as AQMPs within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to air quality with the exception of Plan's consistency applicable air quality

plan in Impact AQ-1,²² these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

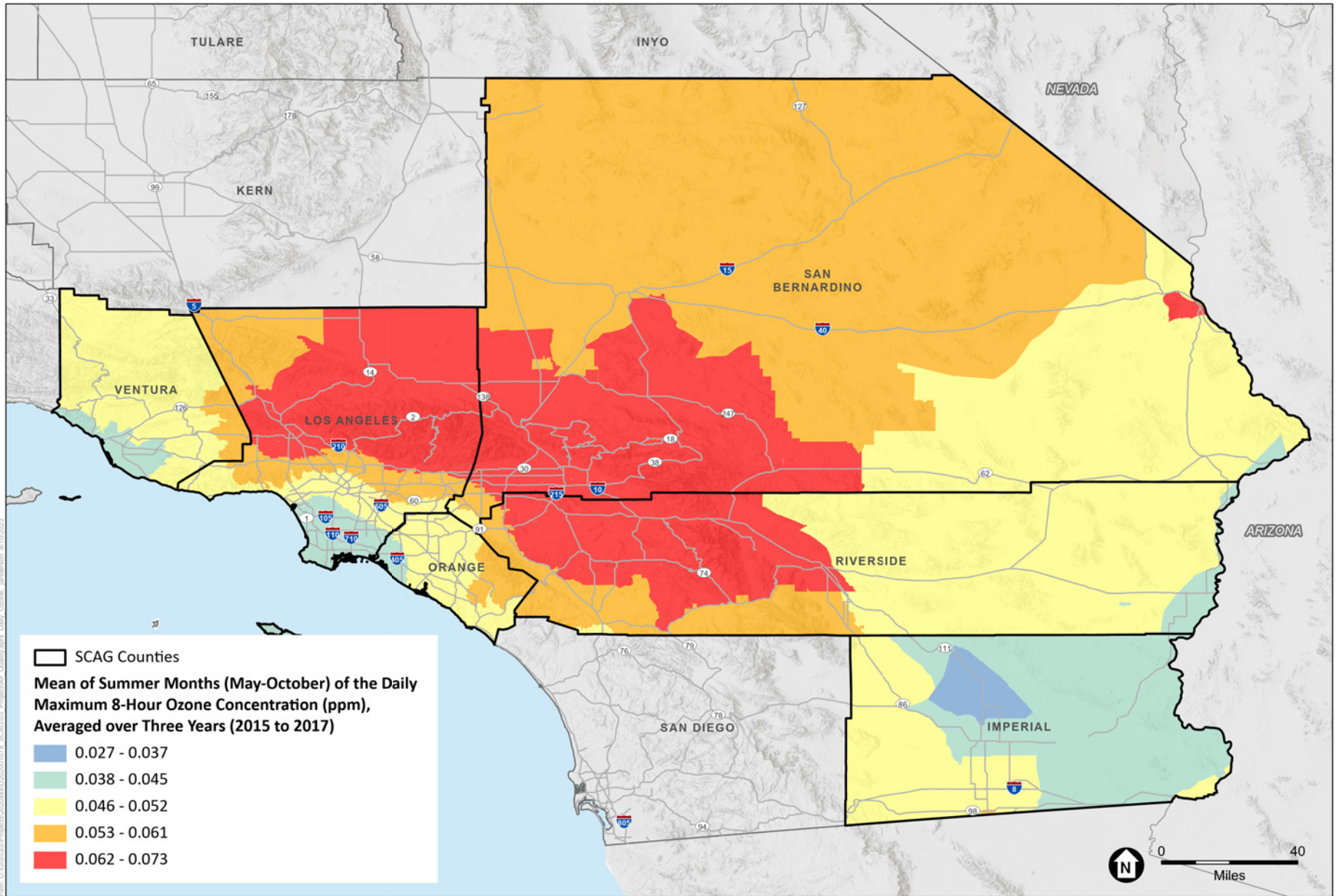
²² The Plan demonstrates a positive transportation conformity determination. Federal approval of the final transportation conformity determination is anticipated in June 2024. This demonstrates that the Plan's contribution to conflict with the applicable air quality plan would not be cumulatively considerable.



SOURCE: CalEnviroScreen 4.0, 2021

Connect SoCal 2024 PEIR

Map 3.3-1
Average Annual Concentration of PM2.5

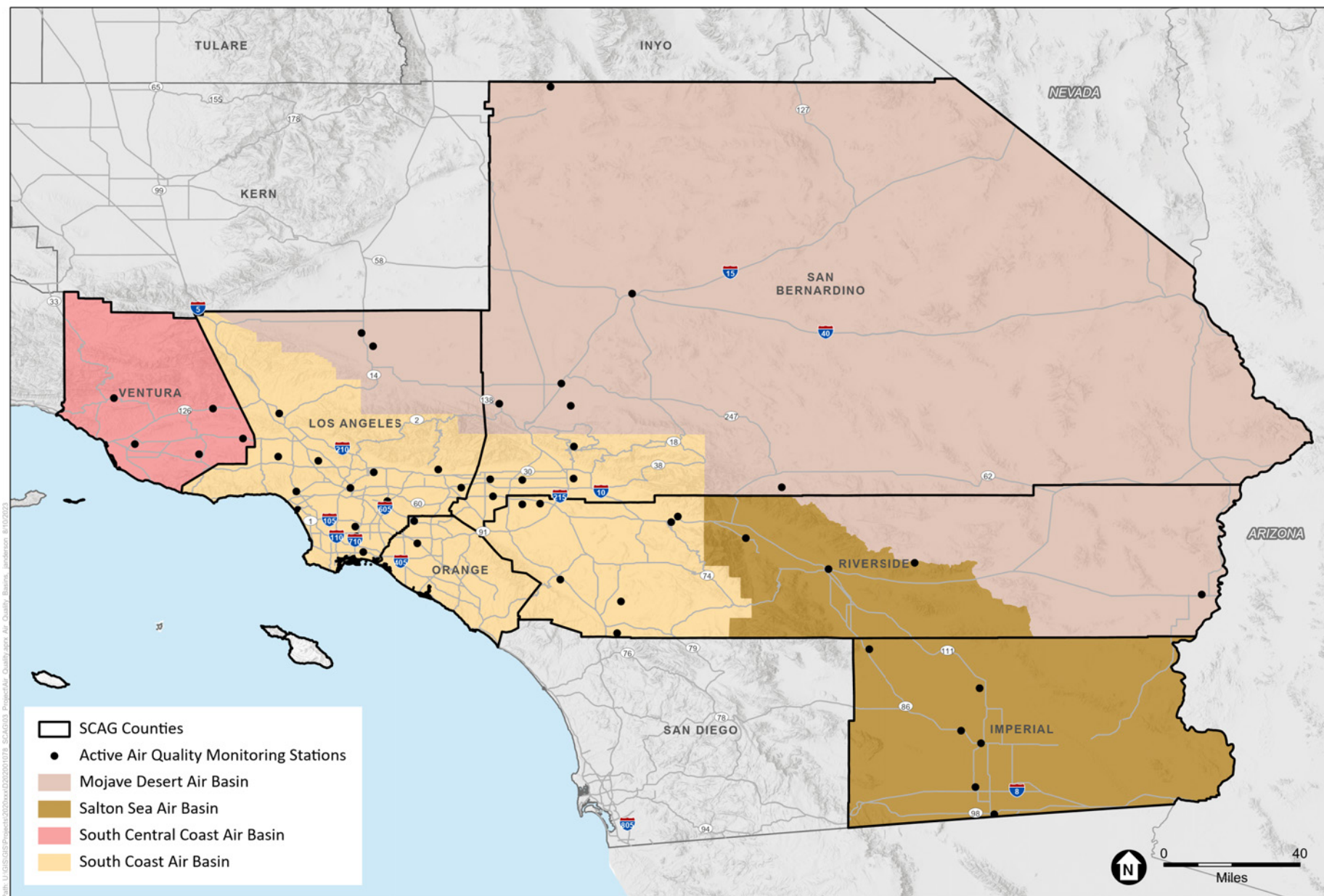


SOURCE: CalEnviroScreen 4.0, 2021

Connect SoCal 2024 PEIR

Map 3.3-2
Average Daily Ozone Exposure in Excess of National 8-Hour Standard



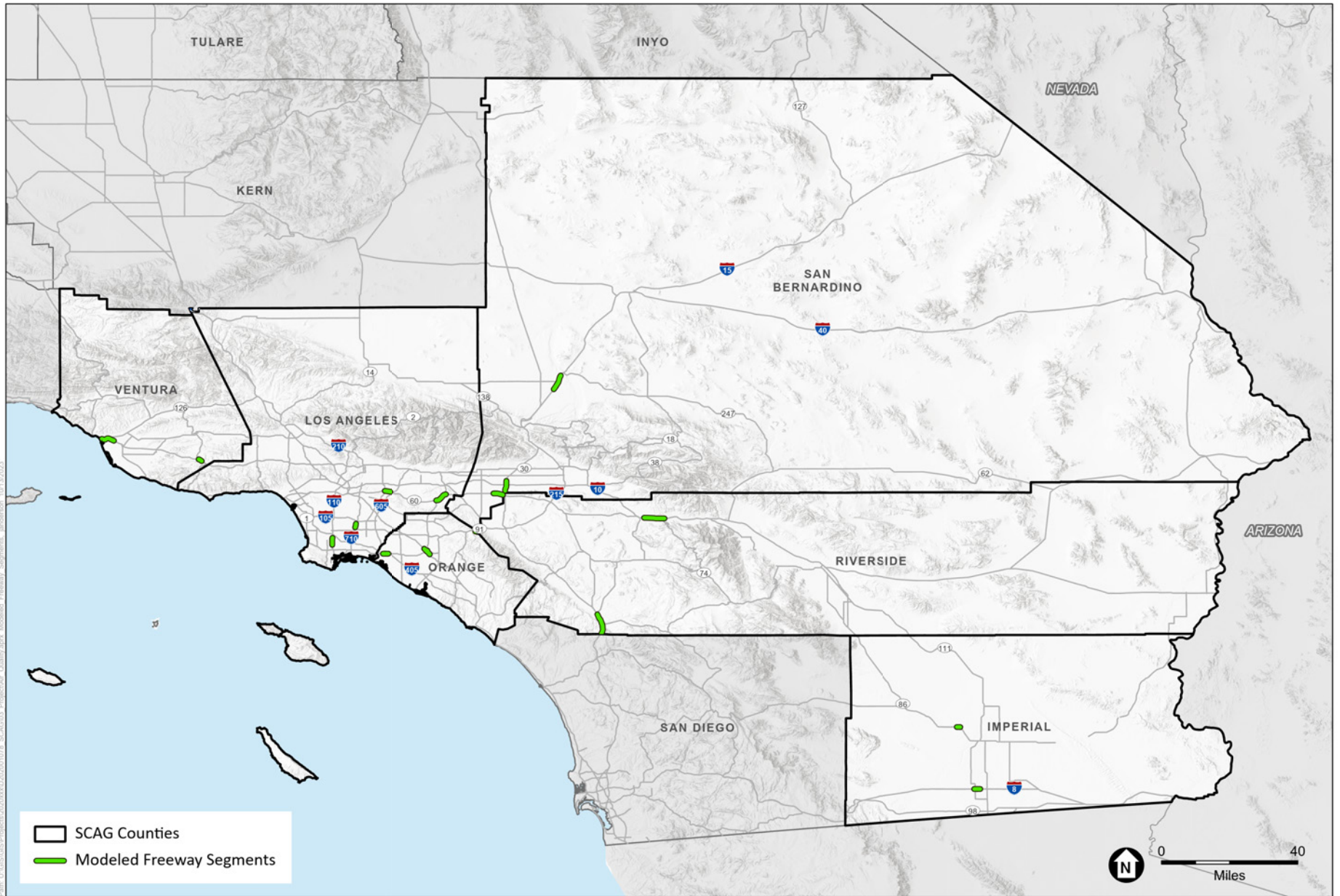


SOURCE: CalEnviroScreen 4.0, 2021; EPA, 2023

Connect SoCal 2024 PEIR

Map 3.3-3
Air Quality Basins and Monitoring Stations

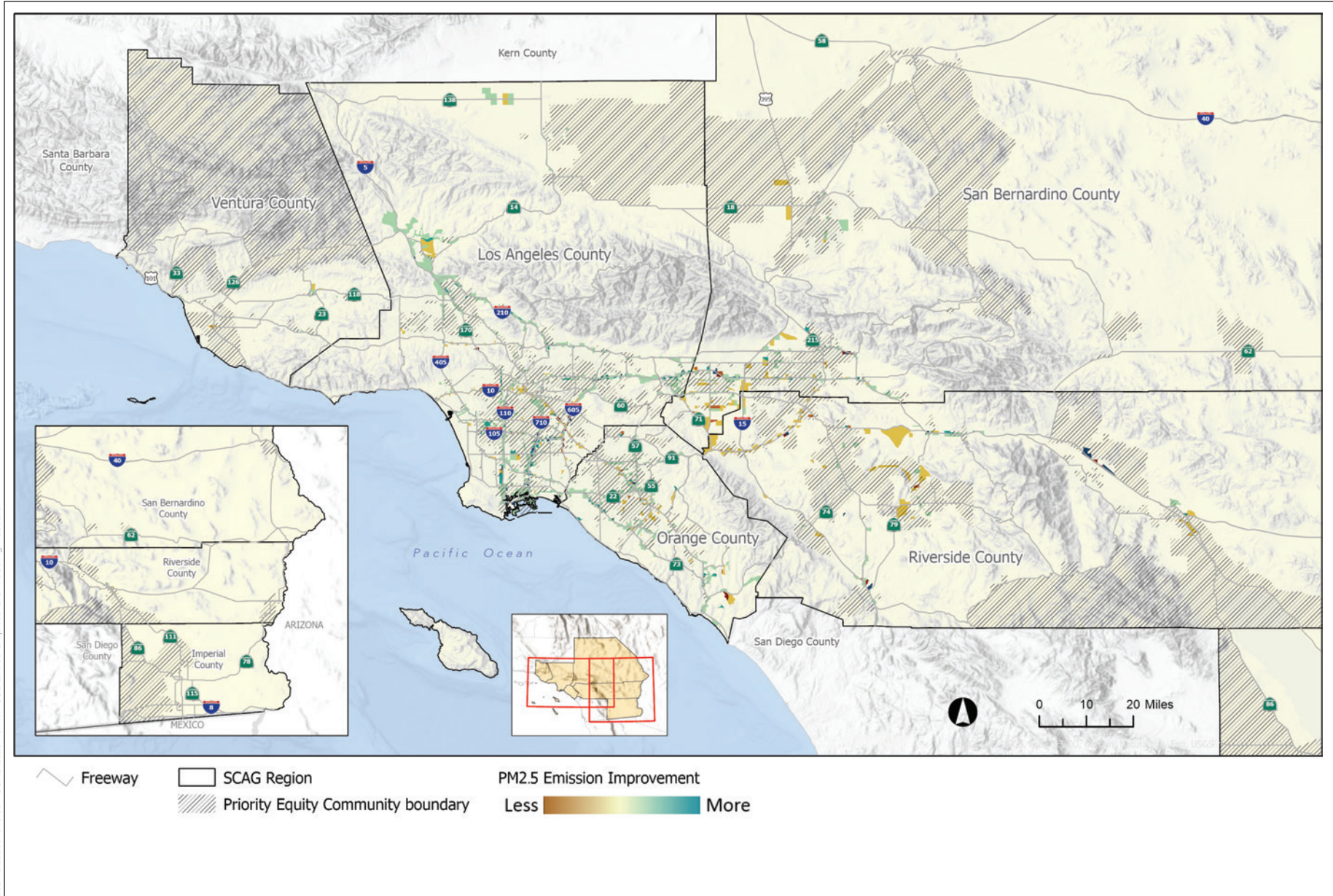




SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map 3.3-4
Overview of Modeled Freeway Segments



SOURCE: SCAG, 2023

Connect SoCal 2024 PEIR

Map 3.3-5
 SCAG Region AB 617 Community PM2.5 Emissions Improvements



3.3.5 SOURCES

- Active Living Research. 2011. Research Results on Land Use, Transportation, and Community Design. <http://activelivingresearch.org/land-use-transportation-and-community-design-research-summary-slides>. Accessed March 25, 2019, and July 18, 2023.
- American Lung Association. 2023a. State of the Air 2023. <https://www.lung.org/research/sota/city-rankings/msas/los-angeles-long-beach-ca>. Accessed July 17, 2023.
- American Lung Association. 2023b. State of the Air 2023: Air Quality Facts. <https://www.lung.org/research/sota/air-quality-facts>. Accessed July 17, 2023.
- Antelope Valley Air Quality Management District (AVAQMD). 2002. Rule 1402 Control of Toxic Air Contaminants from Existing Sources. Amended November 19, 2002. <https://avaqmd.ca.gov/files/c9aa6c271/AV1402.pdf>.
- AVAQMD. 2006. Rule 1401 New Source Review for Toxic Air Contaminants. <https://avaqmd.ca.gov/files/8e1294bb5/AV1401.pdf>.
- AVAQMD. 2016. AVAQMD CEQA and Federal Conformity Guidelines. <https://avaqmd.ca.gov/files/e5b34d385/AV+CEQA+Guides+2016.pdf>.
- AVAQMD. 2017. Federal 75 ppb Ozone Attainment Plan (Western Mojave Desert Attainment Plan). <https://avaqmd.ca.gov/files/de07ac191/AVAQMD+2016+75ppb+Final+Ozone+Attainment+Plan.pdf>.
- AVAQMD. 2023. Federal 70 ppb Ozone Attainment Plan (Western Mojave Desert Attainment Plan). <https://avaqmd.ca.gov/files/020b4aec1/70+ppb+Ozone+Plan+Final+Draft+AV+01.04.2023.pdf>.
- CalEnviroScreen4.0. 2021. Age-adjusted rate of emergency department (ED) visits for asthma per 10,000. 2021 Update.
- California Air Resources Board (CARB). 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October 2000. <https://ww2.arb.ca.gov/resources/documents/guidance-documents>.
- CARB. 2005. Air Quality and Land Use Handbook: A Community Health Perspective. April. <http://www.arb.ca.gov/ch/handbook.pdf>.
- CARB. 2006a. Diesel Particulate Matter Exposure Assessment Study for the Port of Los Angeles and Long Beach. https://ww3.arb.ca.gov/ports/marinevess/documents/portstudy0406.pdf?_ga=2.166328956.333186014.1572896497-1229197864.1566229390. Accessed November 5, 2019, and July 18, 2023.
- CARB. 2006b. Emission Reduction Plan for Ports Goods Movement in California. April. https://www.arb.ca.gov/planning/gmerp/plan/final_plan.pdf.
- CARB. 2007a. Health Risk Assessment for the Four Commerce Railyards. November 30, 2007. https://ww3.arb.ca.gov/railyard/hra/4com_hra.pdf?_ga=2.93549535.333186014.1572896497-1229197864.1566229390.
- CARB. 2007b. Health Risk Assessment for the Union Pacific Railroad Los Angeles Transportation Center Railyard. https://ww3.arb.ca.gov/railyard/hra/up_latc_hra.pdf?_ga=2.64093421.333186014.1572896497-1229197864.1566229390.
- CARB. 2007c. Health Risk Assessment for the Union Pacific Railroad Mira Loma Auto Facility Railyard. https://ww3.arb.ca.gov/railyard/hra/up_miraloma_hra.pdf?_ga=2.97678301.333186014.1572896497-1229197864.1566229390.

- CARB. 2008. Health Risk Assessment for the Union Pacific Railroad City of Industry Railyard. April 18, 2008. https://ww3.arb.ca.gov/railyard/hra/up_coi_hra.pdf? ga=2.56341481.333186014.1572896497-1229197864.1566229390.
- CARB. 2013. The California Almanac of Emissions and Air Quality. <http://www.arb.ca.gov/aqd/almanac/almanac13/almanac2013all.pdf>.
- CARB. 2014. California Air Basin Map. March 14, 2014. <https://ww3.arb.ca.gov/ei/maps/statemap/abmap.htm>. Accessed August 9, 2019.
- CARB. 2015. Proposition 1B: Goods Movement Emission Reduction Program 2015 Guidelines for Implementation. June. https://ww3.arb.ca.gov/bonds/gmbond/docs/prop_1b_goods_movement_2015_program_guidelines_for_implementation.pdf.
- CARB. 2016a. Ambient Air Quality Standards. May 4, 2016. Accessed July 19, 2023. <https://www.arb.ca.gov/research/aaqs/aaqs2.pdf>.
- CARB. 2017a. Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways. April 2017. https://ww2.arb.ca.gov/sites/default/files/2017-10/rd_technical_advisory_final.pdf.
- CARB. 2019. California Air Toxics Program – Background. <https://ww3.arb.ca.gov/toxics/background.htm>. Accessed August 23, 2019.
- CARB. 2020. Area Designations (Activities and Maps). <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/sad20/appc.pdf>. Accessed July 19, 2023.
- CARB. 2023a. Ambient Air Monitoring – Regulatory. <https://ww2.arb.ca.gov/our-work/programs/ambient-air-monitoring-regulatory>. Accessed July 17, 2023.
- CARB. 2023b. California Ambient Air Quality Standards (CAAQS). <https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards>. Accessed August 23, 2019, and July 18, 2023.
- CARB. 2023c. Hotspots Analysis and Reporting Program (HARP). Accessed online at: <https://ww3.arb.ca.gov/toxics/harp/harp.htm>. Accessed August 23, 2019, and July 18, 2023.
- CARB. 2023d. Proposed Advanced Clean Fleets Regulation. <https://ww2.arb.ca.gov/rulemaking/2022/acf2022#:~:text=Proposed%20Advanced%20Clean%20Fleets%20Regulation&text=The%20Final%20Package%20was%20submitted,review%20on%20July%2026%2C%202023>. Accessed October 2, 2023.
- CARB. 2023e. Overview: Diesel Exhaust & Health. <https://ww2.arb.ca.gov/resources/overview-diesel-exhaust-and-health>. Accessed November 5, 2019, and July 18, 2023.
- CARB. 2023f. Clean Truck Check (HD I/M). <https://ww2.arb.ca.gov/our-work/programs/truckstop-resources/truckstop/regulations/clean-truck-check-hd-im>. Accessed August 15, 2023.
- CARB. 2023g. Quality Assurance Air Monitoring Site Information. <https://ww3.arb.ca.gov/qaweb/site.php>. Accessed March 20, 2019, and July 18, 2023.
- CARB. 2023h. Top 4 Summary: Select Pollutant, Years, & Area. <http://www.arb.ca.gov/adam/topfour/topfour1.php>. Accessed 28 March 2019, and July 18, 2023.
- CARB. 2023i. Truck and Bus Regulation. <https://ww2.arb.ca.gov/our-work/programs/truck-and-bus-regulation>. Accessed September 3, 2019, and July 18, 2023.

- CARB. 2023j. Small Off-Road Engine or Equipment Regulatory and Certification Documents. <https://ww2.arb.ca.gov/small-road-engine-or-equipment-regulatory-and-certification-documents>. Accessed July 18, 2023.
- CARB. 2023k. New Vehicle and Engine Certification: Executive Orders for Compression-Ignition and Heavy-Duty Engines and Vehicles. <https://ww2.arb.ca.gov/new-vehicle-and-engine-certification-executive-orders-compression-ignition-and-heavy-duty-engines>. Accessed July 18, 2023.
- CARB. 2023l. Advanced Clean Cars II. <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/advanced-clean-cars-ii>. Accessed July 21, 2023.
- CARB. 2023m. Advanced Clean Trucks Fact Sheet. <https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-trucks-fact-sheet>. Accessed August 15, 2023.
- CARB. 2023n. Advanced Clean Fleets Regulation Summary. <https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary>. Accessed August 15, 2023.
- CARB. 2023o. CARB and truck and engine manufacturers announce unprecedented partnership to meet clean air goals. July 6, 2023. <https://ww2.arb.ca.gov/news/carb-and-truck-and-engine-manufacturers-announce-unprecedented-partnership-meet-clean-air>. Accessed October 2, 2023.
- CARB. 2023p. 2018 State Implementation Plan for the 12 µg/m³ PM_{2.5} Annual Standard. <https://ww2.arb.ca.gov/resources/documents/2018-state-implementation-plan-12-mgm3-pm25-annual-standard>. Accessed July 18, 2023.
- CARB. 2023q. 2017 State Implementation Plan for the 75 ppb 8-hour Ozone Standard. <https://ww2.arb.ca.gov/resources/documents/2017-state-implementation-plan-75-ppb-8-hour-ozone-standard>. Accessed October 2023.
- CARB. 2023r. Nitrogen Dioxide & Health. <https://ww2.arb.ca.gov/resources/nitrogen-dioxide-and-health>. Accessed July 19, 2023.
- California Department of Public Health. 2014. California Wellness Plan 2014. February. https://www.cdph.ca.gov/Programs/CCDPHP/DCDC/CDCB/CDPH%20Document%20Library/CDPH-CAWellnessPlan2014_FINAL%202-27-14_PDF%204.3%20MB.pdf.
- City of Los Angeles Department of City Planning. 2018. Zoning Information File ZI No. 2427. <http://zimas.lacity.org/documents/zoneinfo/zi2427.pdf>.
- County of Riverside. 2018. Air Quality Element. https://planning.rctlma.org/Portals/14/genplan/general_plan_2018/elements/Ch09_AQE_071718.pdf.
- Federal Register. 2009. Environmental Protection Agency: California State Motor Vehicle Pollution Control Standards; Notice of Decision Granting a Waiver of Clean Air Act Preemption for California's 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicles; Notice. <https://www.govinfo.gov/content/pkg/FR-2009-07-08/pdf/E9-15943.pdf>.
- Federal Register. 2012. Secondary National Ambient Air Quality Standards for Oxides of Nitrogen and Sulfur. Tuesday April 3, 2012. Vol. 77, No. 64.
- Federal Register. 2016. Treatment of Data Influenced by Exceptional Events. October 3, 2016. https://www.epa.gov/sites/production/files/2016-09/documents/exceptional_events_rule_revisions_2060-as02_final.pdf.
- Federal Register. 2022a. Corporate Average Fuel Economy Standards for Model Years 2024–2026 Passenger Cars and Light Trucks. Vol. 87, No. 84. <https://www.govinfo.gov/content/pkg/FR-2022-05-02/pdf/2022-07200.pdf>.

- Federal Register. 2022b. California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of a Previous Withdrawal of a Waiver of Preemption. Notice of Decision. Vol. 87, No. 14, p.332. March 14, 2022.
- Heindel, Ruth C., et al. June 2022. *Elevation Nitrogen Deposition to Fire-Prone Forests Adjacent to Urban and Agricultural Areas, Colorado Front Range, USA*.
- Imperial County Air Pollution Control District (ICAPCD). 1999. Rule 407 Nuisances. Revised September 14, 1999. <https://apcd.imperialcounty.org/wp-content/uploads/2020/05/1RULE407.pdf>.
- ICAPCD. 2004. Rule 403 – General Limitations on the Discharge of Contaminants. Revised May 18, 2004. <https://apcd.imperialcounty.org/wp-content/uploads/2020/05/1RULE403.pdf>.
- ICAPCD. 2005. Rule 801 Construction and Earthmoving Activities. Accessed online at: <https://www.co.imperial.ca.us/AirPollution/RULEBOOK/RULES/1RULE801.pdf>.
- ICAPCD. 2012. Rule 800 General Requirements for Control of Fine Particulate Matter (PM-10). <https://www.co.imperial.ca.us/AirPollution/RULEBOOK/RULES/1RULE800.pdf>.
- ICAPCD. 2017a. *CEQA Air Quality Handbook*. <https://www.co.imperial.ca.us/AirPollution/PlanningDocs/CEQAHandbk.pdf>. Imperial County Air Pollution Control District. 2017b. Imperial County 2017 State Implementation Plan for the 2008 8-Hour Ozone Standard. September.
- ICAPCD. 2018. Rule 207 New and Modified Stationary Source Review. <https://ww3.arb.ca.gov/drdb/imp/curhtml/r207.pdf>.
- Institute for Local Government. 2023. California's 18 Metropolitan Planning Organizations. <https://www.ca-ilg.org/post/californias-18-metropolitan-planning-organizations>. Accessed October 29, 2019, and July 18, 2023.
- Kern Council of Governments. 2018. 2018 Regional Transportation Plan Program Environmental Impact Report. SCH No. 2017041081. May 2018. <https://www.kerncog.org/wp-content/uploads/2018/05/2018-Public-Draft-PEIR.pdf>.
- Mojave Desert Air Quality Management District (MDAQMD). 1977. Rule 402 Nuisance. Readopted July 25, 1977. <http://mdaqmd.ca.gov/home/showdocument?id=290>.
- MDAQMD. 2001. Rule 1520 Control of Toxic Air Contaminants from Existing Sources. Adopted September 24, 2001. <http://mdaqmd.ca.gov/home/showdocument?id=504>.
- MDAQMD. 2016a. California Environmental Quality Act (CEQA) and Federal Conformity Guidelines. August 2016. <http://mdaqmd.ca.gov/home/showdocument?id=192>. Accessed August 29, 2019, and July 18, 2023.
- MDAQMD. 2016b. MDAQMD Federal 75 ppb Ozone Attainment Plan (Western Mojave Desert Nonattainment Area). https://www.arb.ca.gov/planning/sip/planarea/wmdaqmp/2016sip_mdplan.pdf.
- MDAQMD. 2017. Federal 75 ppb Ozone Attainment Plan (Western Mojave Desert Nonattainment Plan). https://ww3.arb.ca.gov/planning/sip/planarea/wmdaqmp/2016sip_mdplan.pdf.
- MDAQMD. 2021. Rule 1320 New Source Review for Toxic Air Contaminants Amended March 22, 2021. <https://www.mdaqmd.ca.gov/home/showpublisheddocument/8802/637562297984770000>.
- MDAQMD. 2023a. Federal 70 ppb Ozone Attainment Plan (Western Mojave Desert Nonattainment Area). Adopted January 23, 2023. <https://www.mdaqmd.ca.gov/home/showpublisheddocument/9589/638084392297570000>. Accessed October 3, 2023.

- MDAQMD. 2023b. Wildfires. <http://mdaqmd.ca.gov/air-quality/wildfires>. Accessed November 6, 2019, and July 18, 2023.
- National Institute for Occupational Safety and Health (NIOSH). 1994. Nitrogen Dioxide. May 1994. <https://www.cdc.gov/niosh/idlh/10102440.html>.
- Office of Environmental Health Hazard Assessment (OEHHA). 1999. Appendix D.2 Acute RELs and toxicity summaries using the previous version of the Hot Spots Risk Assessment guidelines. <https://oehha.ca.gov/media/downloads/crn/appendixd2final.pdf>.
- OEHHA. 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*. <https://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>.
- OEHHA. 2016. *Wildfire Smoke: A Guide for Public Health Officials*. Revised May 2016. <https://oehha.ca.gov/media/wildfiresmoke2016.pdf>.
- OEHHA. 2023a. Toxic Air Contaminants. <https://oehha.ca.gov/air/toxic-air-contaminants>. Accessed November 6, 2019, and July 18, 2023.
- OEHHA. 2023b. Health Effects of Diesel Exhaust. http://oehha.ca.gov/public_info/facts/dieselfacts.html. Accessed 8 September 2015, and July 18, 2023.
- Sacramento Metropolitan Air Quality Management District. 2023. State Planning. <http://www.airquality.org/businesses/air-quality-plans/state-planning>. Accessed September 3, 2019, and July 18, 2023.
- San Diego Association of Governments (SANDAG). 2021. Environmental Impact Report San Diego Forward: The 2021 Regional Plan. Final. SCH No. 2010041061. December 2021. <https://www.sandag.org/-/media/SANDAG/Documents/PDF/regional-plan/2021-regional-plan/environmental-impact-report/eir-2021-regional-plan-chapters-1-9-2021-12-01.pdf>.
- Santa Barbara County Association of Governments. 2017a. Connected 2050 Regional Transportation Plan & Sustainable Communities Strategy Final Supplemental EIR. SCH No. 2020120233. May 2021. http://www.sbcag.org/uploads/2/4/5/4/24540302/connected_2050_peir_may_2021.pdf.
- South Coast Air Quality Management District (SCAQMD). 1976. Rule 402. Nuisance. Adopted May 7, 1976. <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-402.pdf?sfvrsn=4>.
- SCAQMD. 1993. CEQA Air Quality Handbook. April 1993.
- SCAQMD. 1999. Map of Jurisdiction. <http://www.aqmd.gov/docs/default-source/default-document-library/map-of-jurisdiction.pdf>.
- SCAQMD. 2005. Rule 403. Fugitive Dust. Amended June 3, 2005. <https://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf?sfvrsn=4>.
- SCAQMD. 2006. Rule 410. Odors from Transfer Stations and Material Recovery Facilities. Adopted October 6, 2006. <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-410.pdf>.
- SCAQMD. 2009. Appendix C, Localized Significance Threshold Screening Tables. *Final Localized Significance Threshold Methodology*. June 2003, revised July 2008, revised October 21, 2009. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-lst-look-up-tables.pdf?sfvrsn=2>.
- SCAQMD. 2015b. Application of the South Coast Air Quality Management District for Leave to File Brief of Amicus Curiae in Support of Neither Party and [Proposed] Brief of Amicus Curiae. April. <https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf>.

- SCAQMD. 2015c. Mates IV. <http://www.aqmd.gov/docs/default-source/air-quality/air-toxic-studies/mates-iv/mates-iv-final-draft-report-4-1-15.pdf?sfvrsn=7>.
- SCAQMD. 2016b. Rule 1402. Control of Toxic Air Contaminants from Existing Sources. Amended October 7, 2016. <http://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1402.pdf>.
- SCAQMD. 2017b. Rule 1401. New Source Review of Toxic Air Contaminants. Amended September 1, 2017. <http://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1401.pdf>.
- SCAQMD. 2017c. Rule 415. Odors from Rendering Facilities. Adopted November 3, 2017. <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-415.pdf?sfvrsn=6>.
- SCAQMD. 2019. Odor Complaints and Nuisance Violations. <http://www.aqmd.gov/home/news-events/community-investigations/sunshine-canyon-landfill/odor-complaints>. Accessed October 30, 2019, and July 18, 2023.
- SCAQMD. 2021. Mates V. <http://www.aqmd.gov/docs/default-source/planning/mates-v/mates-v-final-report-9-24-21.pdf?sfvrsn=6>.
- SCAQMD. 2022a. *Air Quality Management Plan (AQMP)*. <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16>.
- SCAQMD. 2022b. Appendix V: Modeling and Attainment Demonstrations. Appendix to the Air Quality Management Plan (AQMP).
- SCAQMD. 2022c. Appendix III: Base and Future Year Emission Inventory. Appendix to the Air Quality Management Plan (AQMP). <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/appendix-iii.pdf?sfvrsn=6>.
- SCAQMD. 2022d. Appendix I: Health Effects. Appendix to the Air Quality Management Plan (AQMP). <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/appendix-i.pdf?sfvrsn=6>.
- SCAQMD. 2023a. About. <http://www.aqmd.gov/nav/about>. Accessed November 5, 2019, and July 18, 2023.
- SCAQMD. 2023b. South Coast AQMD Air Quality Significance Thresholds. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/south-coast-aqmd-air-quality-significance-thresholds.pdf?sfvrsn=25>. Accessed September 7, 2023, and July 18, 2023.
- SCAQMD. 2023c. Southern California Air Basins. <http://www.aqmd.gov/docs/default-source/default-document-library/map-of-jurisdiction.pdf>.
- SCAQMD. 2023d. Overview of the Proposed Multiple Air Toxics Exposure Study VI. October 6, 2023. <https://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2023/2023-oct6-025.pdf>.
- SCAQMD. 2023e. South Coast AQMD Multiple Air Toxics Exposure Study VI (MATES VI) Technical Advisory Group Meeting #1. October 26, 2023. <https://www.aqmd.gov/docs/default-source/planning/mates-vi/agenda-tag-meeting-1.pdf>.
- SCAQMD. 2023f. Wildfire Smoke & Ash Health & Safety Tips. <http://www.aqmd.gov/home/air-quality/wildfire-health-info-smoke-tips>. Accessed November 6, 2019, and July 18, 2023.
- SCAQMD. 2023g. Complaints. <http://www.aqmd.gov/home/air-quality/complaints>. Accessed September 11, 2023.
- SCAQMD. 2023h. Comment Letters – Year 2023. <http://www.aqmd.gov/home/rules-compliance/ceqa/commenting-agency/comment-letters-year-2023>. Accessed September 11, 2023.

- Southern California Association of Governments (SCAG). 2016. Final Program Environmental Report for the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. <http://scagrtpscsc.net/Pages/FINAL2016PEIR.aspx>. Accessed March 25, 2019, and July 18, 2023.
- SCAG. 2019a. Connect SoCal.
- SCAG. 2019b. Final Federal Safer, Affordable, Fuel-Efficient Vehicles Rule Part I (Supplemental Report). https://scag.ca.gov/sites/main/files/file-attachments/eec_item8_rc_item10_supplemental_report.pdf?1604641275. Accessed July 18, 2023.
- SCAG. 2019c. Public Health Draft Technical Report.
- SCAG. 2020a. The 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy of The Southern California Association of Governments. Adopted September 3, 2020. https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial-plan_0.pdf?1606001176.
- SCAG. 2020b. Active Transportation Technical Report. Adopted September 3, 2020. https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectSoCal_active-transportation.pdf.
- SCAG. 2020c. Transportation Conformity Analysis. Technical Report. September 3, 2020. https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial_transportation-conformity-analysis.pdf?1606002135.
- SCAG. 2023a. Air Quality Management Plans. <http://www.scag.ca.gov/programs/Pages/ManagementPlans.aspx>. Accessed November 12, 2018, and July 18, 2023.
- SCAG. 2023b. SCAG Transportation Modeling.
- SCAG. 2023c. Transportation Conformity Working Group. <https://scag.ca.gov/transportation-conformity-working-group>. Accessed September 8, 2023.
- SCAG. 2023d. Project Level Conformity. <https://scag.ca.gov/project-level-conformity>. Accessed September 8, 2023.
- SCAG. 2023e. Connect SoCal 2024 Equity Analysis. Draft Technical Report. November 2, 2023.
- SCAG. 2023f. Connect SoCal 2024 Performance Monitoring. Draft Technical Report. November 2, 2023.
- Supreme Court of California. 2015. California Building Industry Association v. Bay Area Air Quality Management District. <https://caselaw.findlaw.com/ca-supreme-court/1721100.html>. Accessed October 3, 2019, and July 18, 2023.
- The World Bank Group. 1999. Pollution Prevention and Abatement Handbook 1998: Toward Cleaner Production, pp. 227–230. <http://documents.worldbank.org/curated/en/758631468314701365/pdf/multi0page.pdf>.
- U.S. Department of Health and Human Services. 2015. Executive Summary from Step It Up! Surgeon General's Call to Action. <https://www.hhs.gov/surgeongeneral/reports-and-publications/physical-activity-nutrition/walking-executive-summary/index.html>. Content last reviewed September 8, 2015. Accessed September 3, 2019, and July 18, 2023.
- U.S. Department of Transportation and USEPA. 2019. One National Program Rule on Federal Preemption of State Fuel Economy Standards. <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100X14W.pdf>.
- U.S. Environmental Protection Agency (USEPA). 2001. Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements. <https://www.govinfo.gov/content/pkg/FR-2001-01-18/pdf/01-2.pdf>.

- USEPA. 2004. Control of Emissions of Air Pollution from Nonroad Diesel Engines and Fuel. <https://www.govinfo.gov/content/pkg/FR-2004-06-29/pdf/04-11293.pdf>.
- USEPA. 2007. Control of Hazardous Air Pollutants From Mobile Sources; Final Rule. <https://www.govinfo.gov/content/pkg/FR-2007-02-26/pdf/E7-2667.pdf>.
- USEPA. 2008a. Control of Emissions of Air Pollution From Locomotive Engines and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder. <https://www.govinfo.gov/content/pkg/FR-2008-06-30/pdf/R8-7999.pdf>.
- USEPA. 2008b. EPA Finalizes Emission Standards for New Nonroad Spark-Ignition Engines, Equipment, and Vessels. <https://nepis.epa.gov/Exe/ZyPDF.cgi/P10017GK.PDF?Dockey=P10017GK.PDF>.
- USEPA. 2009a. Control of Air Pollution from New Motor Vehicle Engines; Final Rule. <https://www.govinfo.gov/content/pkg/FR-2009-02-24/pdf/E9-2405.pdf>.
- USEPA. 2009b. Guidance for Implementing the Clean Air Act Section 176(c)(8) Transportation Control Measure Substitution and Addition Provision. <https://nepis.epa.gov/Exe/ZyPDF.cgi/P1002W66.PDF?Dockey=P1002W66.PDF>.
- USEPA. 2014a. Diesel Particulate Matter. <http://www.epa.gov/region1/eco/airtox/diesel.html>. Accessed April 24, 2014.
- USEPA. 2014b. Air Quality Index, A Guide to Air Quality and Your Health. EPA-456/F-14-002. February 2014. https://www.airnow.gov/sites/default/files/2018-04/aqi_brochure_02_14_0.pdf.
- USEPA. 2015. Air Quality Guide for Ozone. March 2015. <https://airnow.gov/index.cfm?action=pubs.aqiguideozone>. Accessed February 11, 2019, and July 18, 2023.
- USEPA. 2019. New Source Review (NSR) Permitting. <https://www.epa.gov/nsr/prevention-significant-deterioration-basic-information>. Accessed August 23, 2019, and July 18, 2023.
- USEPA. 2020. *Integrated Science Assessment for Ozone and Related Photochemical Oxidants*. April 2020.
- USEPA. 2023a. Basic Information about Air Quality SIPs. <https://www.epa.gov/sips/basic-information-air-quality-sips>. Accessed August 23, 2019, and July 18, 2023.
- USEPA. 2023b. Basic Information about Carbon Monoxide (CO) Outdoor Air Pollution. <https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution#What%20is%20CO>. Accessed November 6, 2019, and July 18, 2023.
- USEPA. 2023c. Basic Information about Lead Air Pollution. <https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution>. Accessed November 6, 2019, and July 18, 2023.
- USEPA. 2023d. Basic Information about NO₂. <https://www.epa.gov/no2-pollution/basic-information-about-no2>. Accessed November 6, 2019, and July 18, 2023.
- USEPA. 2023e. Green Book. California Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. https://www3.epa.gov/airquality/greenbook/anayo_ca.html. Accessed July 17, 2023.
- USEPA. 2023f. Ground-Level Ozone Basics. <https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics#wwh>. Accessed July 18, 2023.
- USEPA. 2023g. Nitrogen Dioxide (NO₂) Pollution. <https://www.epa.gov/no2-pollution>. Updated August 2, 2023. Accessed October 202, 2023.
- USEPA. 2023h. Mobile Source Pollution and Related Health Effects. <https://www.epa.gov/Mobile-source-pollution>. Accessed November 12, 2018, and July 18, 2023.

- USEPA. 2023i. NAAQS. <https://www.epa.gov/criteria-air-pollutants/naaqs-table>. Accessed November 6, 2019, and July 18, 2023.
- USEPA. 2023j. Particulate Matter (PM) Basics. <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics>. Accessed November 6, 2019, and July 18, 2023.
- USEPA. 2023k. Regulations for Emissions from Heavy Equipment with Compression-Ignition (Diesel) Engines. <https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-heavy-equipment-compression>. Accessed November 13, 2018, and July 18, 2023.
- USEPA. 2023l. Sulfur Dioxide Basics. <https://www.epa.gov/so2-pollution/sulfur-dioxide-basics>. Accessed July 18, 2023.
- USEPA. 2023m. Summary of the Clean Air Act 42 U.S.C. §7401 et seq. (1970). <https://www.epa.gov/laws-regulations/summary-clean-air-act>. Accessed August 23, 2019, and July 18, 2023.
- USEPA. 2023n. What is Acid Rain? <https://www.epa.gov/acidrain/what-acid-rain>. Accessed July 21, 2023.
- USEPA. Undated. The Clean Air Act – Highlights of the 1990 Amendments. https://www.epa.gov/sites/production/files/2015-11/documents/the_clean_air_act_-_highlights_of_the_1990_amendments.pdf.
- Ventura County Air Pollution Control District (VCAPCD). 1998. Rule 36 – New Source Review – Hazardous Air Pollutants. <http://www.vcapcd.org/Rulebook/Reg2/RULE%2036.pdf>.
- VCAPCD. 2003. Ventura County Air Quality Assessment Guidelines. <http://www.vcapcd.org/pubs/Planning/VCAQGuidelines.pdf>.
- VCAPCD. 2004. Rule 51- Nuisance. Revised April 13, 2004. <http://www.vcapcd.org/Rulebook/Reg4/RULE%2051.pdf>.
- VCAPCD. 2008a. Rule 55 – Fugitive Dust. <http://www.vcapcd.org/Rulebook/Reg4/RULE%2055.pdf>.
- VCAPCD. 2008b. Rule 73 – National Emission Standards for Hazardous Air Pollutants (NESHAPS). Revised September 9, 2008. <http://www.vcapcd.org/Rulebook/Reg4/RULE%2073.pdf>.
- VCAPCD. 2016. 2016 Ventura County Air Quality Management Plan. <http://www.vcapcd.org/pubs/Planning/AQMP/2016/Final/Final-2016-Ventura-County-AQMP.pdf>.
- VCAPCD. 2017. Final 2016 Ventura County Air Quality Management Plan. <http://www.vcapcd.org/pubs/Planning/AQMP/2016/Final/Final-2016-Ventura-County-AQMP.pdf>.
- VCAPCD. 2022. Final 2022 Ventura County Air Quality Management Plan. December 13, 2022. <http://www.vcapcd.org/pubs/Planning/AQMP/2022/Final-2022-AQMP-with-appendices-20221130.pdf>.
- World Health Organization International Agency for Research on Cancer. 2014. World Cancer Report 2014. Edited by B.W. Stewart and C.P. Wild.

3.4 BIOLOGICAL RESOURCES

This section of the 2024 PEIR describes biological resources in the SCAG region, sets forth the regulatory framework that affects biological resources, and analyzes the potential impacts of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental reviews to reduce identified impacts as appropriate and feasible. Supporting documentation including records search results and corresponding data tables regarding biological resources is provided in **Appendix C** of this 2024 PEIR.

3.4.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for biological resources follow:

- *Critical Habitat.* A designated area defined by the U.S. Fish and Wildlife Service (USFWS) as being important for the survival of species listed pursuant to the federal Endangered Species Act (FESA). The USFWS evaluates the collection of the environmental conditions (i.e., plant communities, range, elevation, food source, etc.) essential to the continued conservation and preservation of each species listed as federally threatened and endangered.
- *Federally Designated Sensitive Species.* Species that are not listed by the federal government as endangered, threatened, or candidate species but are categorized by the federal government as a federal species of concern. Federal species of concern is a term-of-art that describes a taxon (organism or group of organisms) whose conservation status may be of concern to the USFWS but does not have official status. In addition, federally designated sensitive species include those that are designated as such by the Bureau of Land Management (BLM) and U.S. Forest Service (USFS) on lands that fall under their jurisdiction.
- *Federally Listed Species.* Species provided with special legal protection under FESA. A federally listed endangered species is a species that is in danger of extinction throughout all or a significant portion of its range. A federally threatened species is one likely to become endangered in the absence of special protection or management efforts provided by the listing. A candidate species is one that is proposed by the federal government for listing as endangered or threatened.
- *Federal Wetlands.* Defined by the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (USEPA) as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (USACE 1987)."
- *Greenfield.* Also known as "raw land," land that is privately owned, lacks urban services, has not been previously developed, and is located at the fringe of existing urban areas.
- *Habitat Conservation Plans (HCPs).* Required by the USFWS as part of an application for an "incidental take" permit for species listed pursuant to FESA. HCPs describe the anticipated effects of the proposed taking, how the impacts will be minimized and mitigated, and how the HCP is to be funded.

- *Locally Important Species*. Species that are not monitored by the resource agencies but monitored by private organizations or local municipal governments. For the purposes of this 2024 PEIR, locally important species include those plant species recognized by the California Native Plant Society (CNPS), a private organization dedicated to the conservation of native plants, as well as those recognized by the Audubon Society.
- *Natural Community Conservation Plan (NCCP)*. Defined by CDFW as a plan for the conservation of natural communities that identifies and provides for the regional or areawide protection and perpetuation of plants, animals, and their habitats (CDFW 2023a).
- *Nursery Site*. Considered habitat in which native wildlife may establish nests, maternity roosts, dens, or otherwise engage in breeding and/or the rearing of offspring.
- *Sensitive Natural Community*. A native plant community listed on CDFW Natural Communities List as being rare within California or threatened by human actions.
- *Special Status Species*. Species that have been afforded special recognition by federal, state, and/or local resource agencies or jurisdictions, or recognized resource conservation organizations. Special status wildlife species include (1) species listed as a candidate, threatened, or endangered under the federal or state Endangered Species Act; (2) species considered rare or endangered under the California Environmental Quality Act (CEQA); (3) plants considered "Rare, Threatened, or Endangered in California" by the California Native Plant Society (Lists 1B and 2); (4) animal listed as "species of special concern" by the state; and (5) animals fully protected in California by the Fish and Game Code.
- *Species of Special Concern (SSC)*. Species, subspecies, or distinct population of an animal (bird, mammal, fish, reptile, and amphibian) native to California that currently satisfies one or more of the following criteria: (a) is extirpated from the state or, in the case of birds, in its primary seasonal or breeding role; (b) is listed as federally, but not state-, threatened or endangered; (c) meets the state definition of threatened or endangered but has not formally been listed; (d) is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for state threatened or endangered status; (e) has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for state threatened or endangered status.
- *State-Designated Sensitive Species*. Species that are not listed by the state government as endangered, threatened, or candidate species but are categorized by the state as a species of special concern or fully protected species. A California species of special concern is defined by the California Department of Fish and Wildlife (CDFW) as being a wildlife species that has declining population levels, a limited range, and/or continuing threats that have made it vulnerable to extinction.
- *State-Listed Species*. Species provided special legal protection under CESA. A state-listed endangered species is a species that is in danger of extinction throughout all or a significant portion of its range. A state-listed threatened species is one likely to become endangered in the absence of special protection or management efforts provided by the listing. A candidate species is one that is proposed by the federal or state government for listing as endangered or threatened.
- *State Wetlands*. Defined by the State Water Resources Control Board (SWRCB), state wetlands are areas that, under normal circumstances, (1) have continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the areas' vegetation is dominated by hydrophytes or the areas lack vegetation.

- *Waters of the United States*. Surface waters such as navigable waters and their tributaries, all interstate waters and their tributaries, natural lakes, all wetlands adjacent to other waters, and all impoundments of these waters. On December 30, 2022, USEPA and the Department of the Army announced a final rule founded upon the pre-2015 definition of “waters of the United States,” updated to reflect consideration of Supreme Court decisions, the science, and the agencies’ technical expertise. The new rule was published in the Federal Register January 18, 2023, and became effective March 2023 (USEPA 2023e). On August 29, 2023, the agencies issued a final rule amending the Code of Federal Regulations to conform the January 2023 Rule’s definition of “waters of the United States” to the Supreme Court decision in *Sackett v. Environmental Protection Agency*. The conforming rule amends the provisions of the agencies’ definition of “waters of the United States” in the January 2023 Rule that are invalid under the Supreme Court’s interpretation of the Clean Water Act in the *Sackett* decision. Specifically, the decision found that wetlands separated from traditional navigable waters are not considered “waters of the United States” under federal Clean Water Act over which protections of the CWA extend; rather, wetlands subject to CWA regulation are limited to those directly adjacent to navigable lakes, rivers, streams and ocean waters, and which have a continuous surface connection with those waters. The conforming rule, “Revised Definition of ‘Waters of the United States’; Conforming,” became effective on September 8, 2023 (USEPA 2023e).
- *Wildlife Movement Corridors*. Characterized as areas of habitat that are used by wildlife for the purpose of moving between locations.

EXISTING CONDITIONS

The SCAG region encompasses an area of varied topography and diverse ecosystems.¹ The region covers over 38,000 square miles across six counties, encompassing two mountain ranges, two deserts, and approximately 150 miles of coastline, with elevations ranging from 234 below to 10,000 feet above mean seal level (msl). Due to the remarkable variation in the region’s topography, climate, and landforms, the biological communities within the area are exceptionally diverse and call for a broad approach to their description.

The SCAG region primarily encompasses the following five United States Department of Agriculture (USDA) regionally defined Ecological Sections (USDA 2007):

- **Southern California Coast Section.** This ecological region is bound to the west by the Pacific Ocean. This section has coastal terraces and low elevation ranges with alluvial lowlands. Plant communities are generally comprised of coastal sagebrush, sagebrush, chaparral, and western hardwood communities. This ecological region occurs in Ventura, Los Angeles and Orange Counties and a small portion of extreme southwestern Riverside County.
- **Southern California Mountain and Valley Section.** Located generally east of the Southern California Coast Section, this region has a landscape of moderate elevation and narrow ranges primarily vegetated with chaparral, chaparral-mountain scrub, western hardwoods, pine, and fir-spruce communities. This ecological section is present in every SCAG county.
- **Mojave Desert Section.** Located primarily within the northeast portion of the SCAG region, this ecological section consists of short mountain ranges, basins, playas, and dunes. Much of this ecological region is vegetated with creosote bush scrub and desert scrub, with pinyon-juniper and other communities within the

¹ An ecosystem is the dynamic complex of plant and animal communities and their associated non-living environment.

large array of elevations within this wide section. The Mojave Desert comprises a large portion of San Bernardino County, and smaller portions of Los Angeles and Riverside Counties.

- **Colorado Desert Section.** This area is largely a plain comprised of alluvial deposits associated with the Salton Sea in Imperial and Riverside Counties. Native vegetation is sparse creosote bush scrub and desert scrub communities, with a high concentration of agricultural lands.
- **Sonoran Desert Section.** This area consists of desert plain interspersed with small low elevation mountain ranges primarily vegetated with creosote bush scrub and desert scrub plant communities. This section covers a large portion of eastern Imperial and Riverside Counties and the southeastern portion of San Bernardino County.

SPECIAL-STATUS SPECIES AND CRITICAL HABITAT

Listed species are generally defined as (1) species listed as a candidate, threatened, or endangered under the federal or state Endangered Species Act; (2) species considered rare or endangered under CEQA; (3) plants considered "Rare, Threatened, or Endangered in California" by the California Native Plant Society (Lists 1B and 2); (4) animal listed as "species of special concern" by the state; and (5) animals fully protected in California by the Fish and Game Code.

Critical habitat is a specific geographic area that is essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat is designated by the USFWS under FESA and cannot be disturbed without permission from the USFWS and other federal agencies, depending on land ownership. The listing process for individual species may include designation of critical habitat. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery (USFWS 2023).

The following discussion is based on a background search of special-status species that are documented in the CNDDDB (CDFW 2023b), the CNPS Inventory of Rare and Endangered Plants (CNPS 2023), and the USFWS Endangered and Threatened species list (USFWS 2023a). The background search was regional in scope and focused on the documented occurrences within the boundaries of the SCAG region.

As described in **Table 3.4-1, Summary of Special-Status Species and Designated Critical Habitat in the SCAG Region**, there are 186 federally and/or state-listed wildlife species and 112 listed plant species with historical records located within the six counties of the SCAG region as well as nearly 5.5 million acres of designated critical habitat. Table 3.4-1 provides further detail on the state- and federally listed plant and animal species, as well as their affiliated critical habitat, within the SCAG region.

TABLE 3.4-1 Summary of Special-Status Species and Designated Critical Habitat in the SCAG Region

COUNTY	NUMBER FEDERALLY AND STATE-LISTED WILDLIFE SPECIES	NUMBER FEDERALLY AND STATE-LISTED PLANT SPECIES	ACRES OF CRITICAL HABITAT
Imperial	20	5	406,258
Los Angeles	40	31	108,746
Orange	24	11	27,234
Riverside	35	21	919,762
San Bernardino	35	25	3,667,694
Ventura	32	19	358,699
Entire SCAG Region	186	112	5,488,393

Source: CDFW 2023b, USFWS 2022a

Every county within the SCAG region contains USFWS-designated critical habitat for listed species (see detailed list of critical habitats by county in Table 1, Critical Habitat in the SCAG Region, in Appendix C, which are shown in **Map 3.4-1, Designated Critical Habitat in the SCAG Region**, below). Critical habitat for 45 of these federally listed species has been established within the SCAG region (see Appendix C). San Bernardino, the largest county in the country, contains nearly 3,700,000 acres of designated critical habitat, or over 66 percent of the lands designated in the SCAG region. Both San Bernardino and Riverside each have designated habitat for 21 federally listed species, the most of any SCAG counties. More than 85 percent (4,685,727 acres) of all the critical habitat in the region is for desert tortoise (*Gopherus agassizii*) and this species represents the largest designated critical habitat in the four of the six SCAG counties in which it is present (San Bernardino, Riverside, Los Angeles, and Imperial Counties). The largest critical habitat in Orange County is coastal California gnatcatcher (*Poliophtila californica californica*) with 18,743 acres, or nearly 69 percent, of the designated lands in the County. California Condor (*Gymnogyps californianus*) has nearly 180,000 acres designated in Ventura County, or 50 percent of all critical habitat designated in the County. Each county has designated critical habitat for a wide variety of species (including plants, amphibians, fish, reptiles, insects, crustaceans, birds, and mammals) and each county has a wide diversity of natural communities to support these species.

STATE AND FEDERALLY LISTED SPECIES

A search of relevant literature and databases for the six counties of the SCAG region was performed to develop a list of 298 listed species and biological resources that could potentially occur in the SCAG region, as shown in **Map 3.4-2, Federally and/or State-Listed Species Reported in the SCAG Region**, below, and listed in Table 2, Federally and State-Listed Species Reported in the SCAG Region, (included in Appendix C). These included federally listed threatened and endangered and state-listed threatened, endangered, or rare species. Although only the third largest county in the region, Los Angeles had the greatest number of listed species with 71. Imperial County had the fewest species listed with 25. See Appendix C for full details.

The Coastal/Southern California distinct population segment (DPS) of California spotted owl was recently granted candidacy under FESA warranting further discussion about the species, below. Additionally, the Southern California/Central Coast evolutionarily significant unit (ESU) of mountain lion and western Joshua tree are two species that were recently granted candidacy under CESA warranting further discussion about the species, below.

CALIFORNIA SPOTTED OWL – COASTAL/SOUTHERN CALIFORNIA DISTINCT POPULATION SEGMENT

On February 23, 2023, the USFWS proposed listing of the Coastal/Southern California DPS of the California spotted owl under FESA. The Coastal/Southern California DPS lacks the ability to withstand normal variations in environmental conditions, persist through catastrophic events, or adapt to new environmental conditions throughout its range”, which led the USFWS to propose listing the DPS as endangered (USFWS 2023b). The ongoing threats to the long-term survival of California spotted owl in the Coastal/Southern California DPS includes habitat loss resulting from large-scale high-severity wildfires, competition and hybridization with non-native barred owls, tree mortality due to drought and beetle infestations, and temperature and precipitation changes related to climate change (USFWS 2023b).

MOUNTAIN LION – SOUTHERN CALIFORNIA/CENTRAL COAST EVOLUTIONARILY SIGNIFICANT UNIT

On April 16, 2020, the California Fish and Game Commission (CFGC) voted unanimously to advance the Southern California/Central Coast ESU of mountain lion to candidacy under CESA. Mountain lion populations in Southern and Central Coast California are imperiled due to human activities. Continued habitat loss and fragmentation has led to 10 genetically isolated populations within California. There are six identified imperiled mountain lion populations in the ESU; four populations occur within the SCAG region, and they include the Santa Monica Mountains lions, the Santa Ana Mountains lions, the San Gabriel/San Bernardino Mountains lions, and the Eastern Peninsular Range lions. At least two of the populations (Santa Monica Mountains and Santa Ana Mountains) are severely constrained and facing an extinction vortex due to high levels of inbreeding, low genetic diversity, and high human-caused mortality rates from car strikes on roads, depredation kills, rodenticide poisoning, poaching, disease, and increased human-caused wildfires (Ernest et al. 2003, 2014; Riley et al. 2014; Vickers 2015; Benson et al. 2016).

The effective population sizes of the four populations within the SCAG region range from four to about 32 mountain lions. An effective population size of 50 is assumed to be sufficient to prevent inbreeding depression over five generations, while an effective population size of 500 is considered sufficient to retain evolutionary potential in perpetuity. All mountain lion populations in the SCAG region are well below that minimum threshold of 50, which indicates that these populations are at serious risk of becoming extirpated. Furthermore, mountain lions in the Santa Monica and Santa Ana mountains have been found to have dangerously low genetic diversity and effective population size, and they are likely to become extinct within 50 years if nothing is done to improve gene flow with other mountain lion populations (Benson et al. 2016; Gustafson et al. 2018; Benson et al. 2019).

The primary threat to the long-term survival of mountain lions in the Southern California/Central Coast ESU is genetic isolation due to lack of connectivity caused by continuous development in mountain lion habitat with little consideration to their movement needs. Mountain lions are wide ranging species that have home ranges of 75 to 200 mi². Thus, the persistence of the four populations with the SCAG region relies heavily on being connected with mountain lions throughout the ESU as well as statewide.

Negative edge effects from human activity, traffic, lighting, noise, domestic pets, pollutants, invasive weeds, and increased fire frequency have been found to be biologically significant up to 300 meters (~1,000 feet) away from anthropogenic features in terrestrial systems. Human development and associated noise can degrade adjacent wildlife habitat and behavior. One study concluded that even “nonconsumptive forms of human disturbance may alter the ecological role of large carnivores by affecting the link between these top predators and their prey” (Smith et al. 2017). In addition, mountain lions have been found to respond fearfully upon hearing human vocalizations, avoiding the area and moving more cautiously when hearing humans.

WESTERN JOSHUA TREE

As of September 2020, the western Joshua tree is being considered for listing under CESA. As a candidate species, western Joshua tree is granted temporary protections under CESA including heightened review and analysis of projects that have the potential to impact the species directly and indirectly. The species is found only within a specific range of temperature and precipitation, restricting the species' distribution. Increased temperatures, reduction in precipitation, development, wildfires, invasive species, and other threats endanger the continued viability of the species. Effective July 1, 2023, the Western Joshua Tree Conservation Act (see discussion below) prohibits unpermitted killing or removal of the trees, tasks state wildlife authorities with developing and implementing a conservation plan for the species by 2024 and creates a fund to acquire and manage suitable habitat.

QUINO CHECKERSPOT BUTTERFLY

The Quino checkerspot butterfly was listed on the Federal Endangered Species Act in 1997. The CBD released a petition to list the Quino checkerspot butterfly as endangered under CESA on June 29, 2020. Quino checkerspot (*Euphydryas editha quino*) was a common spring butterfly of the open forblands, grasslands, and sparse shrublands of Southern California where it typically laid its eggs on the small native forb, *Plantago erecta* (Mattoni et al. 1997). As these landscapes were lost to urban development throughout Los Angeles and Orange counties, the remaining populations in Riverside and San Diego counties are threatened by the continued invasion of non-native grasses, spread through the ranching era, and accelerated by deposition of nitrogen (see discussion below). In addition, the species is threatened by sprawl development, habitat fragmentation, agriculture, grazing, and climate change, including increased drought and fire frequency.

CROTCH BUMBLE BEE

As of June 2019, the Crotch bumble bee (*Bombus crotchii*), along with three other bumble bee species, is a candidate species for listing under CESA, under a 2018 petition by the Xerces Society. Similar in status as western Joshua tree, Crotch bumble bee is granted temporary protections under CESA as a candidate species, including increased review and analysis of projects that have the potential to impact the species. The species occurs primarily in California, including the Mediterranean region, Pacific Coast, western deserts, and adjacent foothills through much of southwestern California, in habiting open grassland and scrub habitats. The species used to be more common in the Central Valley but urbanization and intensive agricultural has restricted the species' distribution in this region. The species is a generalist forager and has been reported visiting a wide variety of flowering plants, including members of the Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, and Boraginaceae plant families. Factors influencing the reduction in bumble bee populations are principally loss of habitat, especially from agricultural intensification, livestock grazing and urbanization, which restricts access to nectar and pollen sources, nesting sites, and overwintering site for hibernation. Bumble bees are particularly sensitive to habitat fragmentation and populations of bumble bees existing in fragmented habitats can face problems with inbreeding depression. A final decision on the listing of the four bumble bee species is still pending before the California Fish and Game Commission.

SENSITIVE WILDLIFE SPECIES

In addition to federally and state-listed wildlife species, other sensitive wildlife species include (1) species considered rare or endangered under the California Environmental Quality Act; (2) animal listed as "species of special concern" by the state; (3) animals fully protected in California by the Fish and Game Code; (4) species on

CDFW's Special Animals List that have a CNDDDB state rarity rank of S1-S3) and/or a Watch List species; and (5) species considered by local jurisdictions or organizations to be locally important (i.e., Ventura County Locally Important Animal List (Ventura County 2022a).

In addition to the federally and State-listed wildlife species described above, there are 253 other sensitive wildlife species with historic records located within the SCAG region as shown in **Map 3.4-3, Other Sensitive Species Reported in the SCAG Region**,² below. See the full list in Table 3, Other Sensitive Wildlife Species Reported in the SCAG Region, in Appendix C.

Of these 253 sensitive wildlife species, Riverside and San Bernardino Counties had the highest diversity of species observed (both with approximately 21 percent of the total recorded for the SCAG region), followed closely by Los Angeles County (with approximately 20 percent of the wildlife recorded), and then Imperial, Orange, and Ventura Counties (with a range of 10–13 percent of the recorded observations).

RARE AND LOCALLY IMPORTANT PLANTS

Rare and locally important plant species are generally defined as (1) species considered rare or endangered under the California Environmental Quality Act (CEQA); (2) plants designated "Rare, Threatened, or Endangered in California" by the CDFW and California Native Plant Society (CNPS; California Rare Plant Ranks 1B, 2B, 3, and 4) species considered by local jurisdictions or organizations to be locally important.

Rare plants and plants of local importance are recorded by the CNDDDB and the CNPS Rare Plant Inventory, and Ventura County locally important plant list. In addition to the federally and state-listed plant species described above, there are 925 locally important plant species with historic records located within the SCAG region as shown in Table 4, Rare and Locally Important Plants Reported in the SCAG Region, included in Appendix C. Plant species recorded by the CNDDDB within the SCAG region are shown in Map 3.4-3.³ As described below, the greatest number, representing more than 28 percent of 925 species recorded, were found in San Bernardino County and Ventura County, with 17 percent in Los Angeles County, 15 percent in Riverside County, and less than 10 percent in Orange and Imperial Counties.

RIPARIAN AND STATE SENSITIVE NATURAL COMMUNITIES

The six counties within the SCAG region contain nearly 23 million acres of "open space" combined. These undeveloped lands include the region's national forests, state parks, military installations, other public lands, and various private holdings. Much of the open space in the region has been left in its natural state, however many non-native species have transformed what was once native habitat.

The CNDDDB identifies approximately 322,000 acres as containing state-sensitive natural communities, those identified as critically imperiled, or vulnerable to extirpation. Riparian, marsh, and scrub habitats in the SCAG region and associated with drainages or streams may fall under the jurisdiction of the CDFW. Improvements within or in the vicinity of these regulatory habitats would require compliance with Section 1600 of the California Fish and

² Ventura County locally important animal species are not shown on Map 3.4-3 unless the species is also being tracked in the CNDDDB (CDFW 2023b).

³ Ventura County locally important plant species and CNPS rare plant species are not shown on Map 3.4-3 unless recorded by the CNDDDB.

Game Code under which a Lake or Streambed Alteration Agreement would need to be obtained prior to the alteration of a state jurisdictional area.

As shown in **Map 3.4-4, CDFW Sensitive Natural Communities Reported in the SCAG Region**, below, and listed in Table 5, CDFW Sensitive Natural Communities Reported in the SCAG Region, included in Appendix C, 45 riparian and sensitive natural communities have been recorded by the CNDDDB. This CNDDDB information was last recorded in 1993, as the Natural Heritage Division of the CDFW is currently in the process of classifying and mapping vegetation in the state. Although there is no current comprehensive picture of CDFW sensitive natural communities and riparian habitat, it is highly likely that such communities exist within the SCAG region. Therefore, it is important that individual projects consider sensitive communities and carefully examine project sites on a case-by-case basis.

Since the mid-1990s, CDFW and their partners, including CNPS, have been classifying vegetation types using the state standards outlined in the Manual of California Vegetation, updated in the second edition of the Manual (Sawyer et al. 2009). These state standards are being used in the classification of Sensitive Natural Communities throughout California that are currently being evaluated using NatureServe's Heritage Methodology, the same system used to assign state rarity ranks for sensitive plant communities in the CNDDDB (CDFW 2023c). Natural Communities with state ranks of S1-S3 are considered Sensitive Natural Communities that should be addressed during the CEQA process.

As of 2018, about half of California has been mapped and classified according to this state standard. Table 6, Sensitive Natural Communities within the SCAG Region, included in Appendix C, provides the Vegetation Classification and Mapping Program's (VegCAMP) current list of vegetation Alliances with State Rarity Ranks of S1-S3 that occur within the USDA Ecological Sections (Southern California Coast, Southern California Mountains and Valleys, Mojave Desert, Colorado Desert, Sonoran Desert) found in the SCAG region. Some of these sections overlap portions of counties outside of the SCAG region (primarily portions of San Diego and Santa Barbara Counties). Although this data is incomplete, it is highly likely that these or additional Sensitive Natural Communities may occur in the footprint of future projects in the SCAG region. Therefore, it is important that individual projects evaluate potential impacts to these Sensitive Natural Communities, in addition to the riparian and CDFW sensitive natural communities listed in Table 6.

FEDERALLY PROTECTED WETLANDS AND WATERWAYS

Current National Wetlands Inventory maps (USFWS 2023c) and USGS National Hydrography Dataset of surface waters (rivers, streams, ephemeral streams, canals, lakes, ponds, and other hydrologic features) for the SCAG region were reviewed to identify the extent of potential federally and/or state protected wetlands and waterways (USFWS 2023c; USGS 2022a). These aquatic resources could potentially be subject to the jurisdiction of the USACE, CDFW, and/or RWQCBs, and have been mapped within each of the six counties in the SCAG region (**Table 3.4-2, Wetlands and Waterways Reported in the SCAG Region**, and **Table 3.4-3, Federally Protected Surface Water Features Reported in the SCAG Region**). These wetlands and waterways are shown in **Map 3.4-5, Wetlands and Waterways Reported in the SCAG Region**, below.

TABLE 3.4-2 Wetlands and Waterways Reported in the SCAG Region

WETLAND TYPE	NATIONAL WETLANDS INVENTORY (ACRES)
Imperial County	
Freshwater Emergent Wetland	6,255
Freshwater Forested/Shrub Wetland	21,427
Freshwater Pond	7,063
Lake	199,953
Riverine	46,920
Total	281,618
LOS ANGELES COUNTY	
Estuarine and Marine Deepwater	902
Estuarine and Marine Wetland	1,240
Freshwater Emergent Wetland	2,500
Freshwater Forested/Shrub Wetland	11,870
Freshwater Pond	7,625
Lake	21,507
Riverine	28,925
Total	74,569
Orange County	
Estuarine and Marine Deepwater	565
Estuarine and Marine Wetland	1,648
Freshwater Emergent Wetland	989
Freshwater Forested/Shrub Wetland	4,119
Freshwater Pond	1,421
Lake	2,323
Riverine	5,797
Total	16,862
Riverside County	
Freshwater Emergent Wetland	8,550
Freshwater Forested/Shrub Wetland	16,873
Freshwater Pond	4,241
Lake	68,712
Riverine	74,412
Total	172,788

WETLAND TYPE	NATIONAL WETLANDS INVENTORY (ACRES)
San Bernardino County	
Freshwater Emergent Wetland	4,744
Freshwater Forested/Shrub Wetland	14,614
Freshwater Pond	8,502
Lake	255,738
Riverine	203,757
Total	487,355
Ventura County	
Estuarine and Marine Deepwater	860
Estuarine and Marine Wetland	2,720
Freshwater Emergent Wetland	2,713
Freshwater Forested/Shrub Wetland	10,740
Freshwater Pond	2,175
Lake	4,132
Riverine	12,551
Total	35,891

Source: USFWS 2022a.

TABLE 3.4-3 Federally Protected Surface Water Features Reported in the SCAG Region

MAJOR RIVER OR LAKE	ACRES	LINEAR MILES
Imperial		
Salton Sea	190,440	—
Total	190,440	—
Los Angeles		
Bouquet Canyon Reservoir	628	—
Castaic Lake	2,008	—
Lake Palmdale	260	—
Las Virgenes Reservoir	140	—
Morris Reservoir	283	—
Puddingstone Reservoir	248	—
Pyramid Lake	1,177	—
San Gabriel Reservoir	525	—
Quail Lake	250	—
Los Angeles River	—	51

MAJOR RIVER OR LAKE	ACRES	LINEAR MILES
San Gabriel River	—	59
Santa Clara River	—	44
Total	5,519	154
Orange		
Irvine Lake	327	—
San Gabriel River	—	1
Santa Ana River	—	27
Total	327	28
Riverside		
Diamond Valley Lake	4,914	—
Lake Elsinore	2,648	—
Lake Matthews	2,552	—
Perris Reservoir	1,548	—
Salton Sea	42,540	—
Skinner Reservoir	1,037	—
Vail Lake	470	—
Santa Ana River	—	26
Santa Margarita River	—	5
Whitewater River	—	70
Total	55,709	101
San Bernardino		
Big Bear Lake	2,818	—
Lake Arrowhead	736	—
Silverwood Lake	905	—
Mojave River	—	110
Santa Ana River	—	44
Total	4,459	154
Ventura		
Lake Casitas	1,540	—
Lake Piru	1,066	—
Santa Clara River	—	39
Ventura River	—	16
Total	2,606	55

Source: USGS 2022

WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors, or habitat linkages, are generally defined as connections between habitat patches that allow for physical and genetic exchange between otherwise isolated animal populations. Such linkages may serve a local purpose, such as providing a linkage between foraging and denning areas, or they may be regional in nature. Some habitat linkages may serve as migration corridors, wherein animals periodically move away from an area and then subsequently return. Others may be important as dispersal corridors for young animals. A group of habitat linkages in an area can form a wildlife corridor network.

The presence of viable and sustainable wildlife corridor networks may also be critical to the survival of some species as habitat conditions and landscapes are altered due to climate change. Across the SCAG region's diverse habitat types, many native plant species are at risk because of from climate change effects (CDFW 2022). These effects include rising sea levels, increased temperatures, decreased water availability and/or altered precipitation patterns, and invasive species infestations. Special status species are most susceptible to climate change due to their small population sizes and, often, specific suitable habitat conditions required for survival. These impacts on plants change ecosystems and the wildlife they support. Maintaining existing connected habitat linkages and establishing new wildlife crossings is essential to the survival of California's diverse native species and unique ecosystems in the face of a changing climate. As habitat conditions change in response to altered climate conditions, wildlife require an increased diversity of opportunities for movement and migration to a wide variety of landscapes (CDFW 2022).

The California Department of Transportation (Caltrans) and CDFW commissioned the California Essential Habitat Connectivity Project (CEHC) to assess essential habitat connectivity across the state (Spencer et al. 2010). As shown in **Map 3.4-6, Essential Habitat Connectivity and Natural Landscape Blocks within the SCAG Region**, a large portion of the SCAG region includes many natural landscape blocks, accounting for nearly 12 million acres that support high native wildlife biodiversity with a significant wildlife connectivity network (Map 3.4-6; **Table 3.4-4, Natural Landscape Blocks by County in the SCAG Region**) (CDFW 2017). Habitat connectivity for these blocks is identified by Class, with Class 1 providing the lowest permeability for wildlife movement and Class 5 having the highest permeability. These large and intact blocks are connected by over 4.5 million acres of corridors that are highly (Class 4 and 5) permeable (i.e., beneficial) to wildlife movement (**Table 3.4-5, Essential Connectivity Areas by County in the SCAG Region [acres]**). A large portion of these landscape blocks and essential connectivity areas are spread through eastern Imperial, Riverside, and San Bernardino Counties. Ventura County has the relatively largest proportion of landscape blocks and essential connectivity areas by county acreage. Large portions of the mountainous parts of Los Angeles County provide a critical linkage between habitat blocks from Riverside and Imperial County to the east and Ventura County to the west. Orange County has limited essential connectivity habitat and habitat blocks, located mostly in the eastern end of the county, but these provide connectivity to San Diego County to the south.

TABLE 3.4-4 Natural Landscape Blocks by County in the SCAG Region

COUNTY	AREA (ACRES)
Imperial	971,568
Los Angeles	797,304
Orange	134,443
Riverside	2,512,738
San Bernardino	6,803,617
Ventura	701,255
Grand Total	11,920,925

Source: CDFW 2017

TABLE 3.4-5 Essential Connectivity Areas by County in the SCAG Region (acres)

CLASS	IMPERIAL	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO	VENTURA	TOTAL
Class 5 – Most Permeable	394,558	110,885	—	558,072	1,242,727	212,488	2,518,730
Class 4	273,193	97,541	—	415,974	1,032,287	193,203	2,012,198
Class 3	240,350	90,926	—	359,190	836,791	165,127	1,692,384
Class 2	235,162	99,915	—	371,235	873,323	98,393	1,678,028
Class 1 – Least Permeable	187,232	103,589	1,306	351,780	880,475	73,171	1,597,553
Total	1,330,495	502,856	1,306	2,056,251	4,865,603	742,382	9,498,893

Source: CDFW 2022

Barriers to wildlife movement exist throughout the SCAG region, including large areas of urban development and multilane freeways that cut off regional movement for migratory and resident species alike. These barriers can affect all species from large mammals to small insects and can lead to significant degradation of ecosystem function and plant community composition. Conservation, protection, and enhancement of these intact Natural Landscape Blocks and Essential Connectivity Areas should be considered in project development to maintain or improve the viability of wildlife movement networks and natural community stability.

A notable example of wildlife corridor enhancement is the wildlife crossing being constructed over the State Route 101 Freeway at Liberty Canyon Road in Agoura Hills. The development of the Wallis Annenberg Wildlife Crossing will help facilitate mountain lion and other terrestrial wildlife movement over a major regional freeway, opening a corridor and reducing the risk of motor vehicle collisions with wildlife. Managed by Caltrans, the Wallis Annenberg Wildlife Crossing is a regional partnership with many public and private entities, including the Annenberg Foundation, City of Agoura Hills, City of Thousand Oaks, Mountains Recreation and Conservation Authority, the Santa Monica Mountains Conservancy, the National Park Service, and the Resource Conservation District of the Santa Monica Mountains. Construction began on the wildlife crossing in the summer of 2022 and is planned to be completed in fall 2024 (National Wildlife Federation/SaveLACougars 2019). The crossing will cross ten lanes of US Highway 101 and an access road, with an estimated 210-foot-long by 175-foot-wide structure that will rank as the

largest wildlife crossing in the world. This crossing will reconnect currently fragmented ecosystems for the benefit of mountain lions and other wildlife.

In addition to these essential corridors, major rivers, creeks, and streams often serve as nursery sites for fish, amphibian, and invertebrate species. These important features can facilitate movement between landscape blocks. Over 182,000 acres of these riparian wildlife connections have been mapped as part of the California Essential Habitat Connectivity Project in the SCAG region (see **Table 3.4-6, Potential Riparian Connections in the SCAG Region**, and Map 3.4-6).

TABLE 3.4-6 Potential Riparian Connections in the SCAG Region

County	Riparian Connections (Acres)
Imperial	33,584
Los Angeles	34,065
Orange	5,861
Riverside	21,564
San Bernardino	56,141
Ventura	31,370
Total	182,585

Source: CDFW 2016

HABITAT CONSERVATION PLANS AND NATURAL COMMUNITY CONSERVATION PLANS

A habitat conservation plan (HCP) is a planning document required as part of an application for an incidental take permit. HCPs describe the anticipated effects of the proposed taking, how the impacts will be minimized and mitigated, and how the HCP is to be funded. An NCCP is defined by CDFW as a plan for the conservation of natural communities that identifies and provides for the regional or area-wide protection and perpetuation of plants, animals, and their habitats. As described by **Table 3.4-7, HCPs and NCCPs in the SCAG Region**, more than 20 million acres of open space within the SCAG region are currently protected under an HCP or NCCP or will be protected by a future HCP or NCCP that is currently in its planning stages. Data from CDFW and USFWS show 31 plans with durations of 16–80 years, providing conservation efforts for nearly three million acres in the SCAG region. As a group, these plans provide protection for multiple species by conserving habitats, identifying locations for future mitigation efforts, providing conservation guidance and practices, and preserving important wildlife linkages.

REGIONAL CONSERVATION INVESTMENT STRATEGIES

The Regional Conservation Investment Strategies (RCIS) Program is a non-regulatory, voluntary, non-binding assessment conducted by public agencies to encourage development of regional conservation planning documents (CDFW 2023h). The assessments focus on gathering and analyzing information related to the conservation of native species, associated habitats, and the conservation status of lands present within the RCIS planning area to ultimately conserve these natural resources and provide the development of mitigation credits to reach regional conservation goals.

TABLE 3.4-7 HCPs and NCCPs in the SCAG Region

HCP/NCCP	IMPERIAL	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO	VENTURA
Aera SW San Joaquin Valley NCCP/HCP						X
AgCon Oro Grande North Mine Pit					X	
Angelus Block					X	
Assessment District 161				X		
California Department of Corrections Statewide Electrified Fence Project	X	X		X	X	
City of Rancho Palos Verdes NCCP		X				
Coachella Valley Fringe-Toed Lizard				X		
Coachella Valley MSHCP				X		
Copper Mountain College HCP ^a				X		
Cushenbury San & Gravel					X	
El Sobrante Landfill HCP				X		
High Desert Solar Project					X	
Imperial Irrigation District NCCP/HCP	X					
Joshua Tree Campground					X	
Lake Mathews HCP				X		
Lower Colorado River Multiple Species Habitat Conservation Plan (MSHCP)	X			X		
Newhall Farms Seasonal Crossings HCP		X				
North Peak Development Project				X		
Orange County Central/Coastal NCCP/HCP			X			
Orange County Southern Subregion HCP			X			
Orange County Transportation Authority NCCP/HCP			X			
Rancho Bella Vista (Pacific Bay Properties)				X		
Riverside County, Stephens' Kangaroo Rat (Long-Term) HCP				X		
San Diego County Water Authority NCCP/HCP				X		
San Diego Gas and Electric – Quino Checkerspot Butterfly Low-Effect HCP			X	X		
Shell Oil Company/Metropolitan Water District of Southern California HCP			X			
Sunland Communities Inc. HCP					X	
Town of Apple Valley MSHCP					X	
Upper Santa Ana River Wash					X	
West Valley HCP					X	
Western Riverside County MSHCP				X		

Source: CDFW 2022j; USFWS 2022d

Table Notes:

a. Copper Mountain College HCP expired on July 31, 2023.

Two RCIS's are located within the SCAG Region: Antelope Valley RCIS in northeastern Los Angeles County and the San Bernardino County RCIS in western San Bernardino County. The Antelope Valley RCIS was completed in January 2020 and the San Bernardino County RCIS is in development. The Antelope Valley RCIS proponent is the Desert and Mountain Conservation Authority and the San Bernardino County RCIS proponent is the San Bernardino County Transportation Authority.

NITROGEN DEPOSITION

Nitrogen deposition from use of fossil fuels and agricultural chemical applications has the potential to impact sensitive habitats and species. An increase in nitrogen inputs can lead to soil and water acidification, plant nutrient imbalances, declines in plant health, changes in species composition, increases in invasive species, increased susceptibility to secondary stresses (e.g., freezing, drought, and insect outbreaks).

As discussed in Section 3.3, *Air Quality*, nitrogen oxides (NO_x) are released in the air through the burning of fossil fuels (including vehicles fueled by fossil fuels), agricultural fertilizer application, and livestock waste (Science News 2016). NO_x emissions react with dust or dissolve into rainwater and fall onto ecosystems as reactive nitrogen (Nr) deposition (NPS 2023a). An increase in nitrogen inputs can lead to soil and water acidification, plant nutrient imbalances, declines in plant health, changes in species composition, increases in invasive species, increased susceptibility to secondary stresses (i.e., freezing, drought, and insect outbreaks). Nitrogen saturation occurs in areas where nitrogen exceeds the plant and microbial demand (Pardo, L.H. 2010). In areas with nitrogen deficiencies, nitrogen deposition can be beneficial. Specifically, areas can see increases in forest growth, carbon sequestration, and stand health in general (NPS 2023b).

Total nitrogen deposition includes wet and dry oxidized and reduced nitrogen. Wet deposition is when rain, snow, or fog carries gases and particles to the earth's surface. Dry deposition is when gases and particles are carried to the surface in the absence of rain, snow, or fog. Oxidized nitrogen is produced from the burning of fossil fuels as well as natural sources such as lightning, forest fires and bacterial decay (USEPA 2023b). Oxidized nitrogen includes nitric acid (HNO₃), nitric oxide (NO), nitrogen dioxide (NO₂), ammonia (NH₃), and particulate nitrate (NO₃) (USEPA 2023c). Reduced nitrogen is primarily emitted from agricultural systems but also from automobiles. Reduced nitrogen includes ammonia and particulate ammonium (NH₄) (USEPA 2023d). In March 2020, USEPA released regional trends in nitrogen deposition. The annual average total deposition rate of nitrogen in the Pacific region of the United States decreased by approximately 11 percent from 3.7 kg-N/ha to 3.3 kg-N/ha between the periods 2000–2002 and 2016–2018. The total deposition of oxidized nitrogen decreased by approximately 37 percent from an annual average 2.7 kg-N/ha to 1.7 kg-N/ha over the same period. The total deposition of reduced nitrogen increased approximately 36 percent from an annual average of 1.1 kg-N/ha in 2000–2002 to 1.5 kg-N/ha over the same time period (USEPA 2023d, 2023g).

Studies have shown that automobile NH₃ emissions within the South Coast Air Basin come primarily from light-duty gasoline vehicles (depending on the age and mode of driving) and dairy facilities (National Atmospheric Deposition Program 2023a). NH₃ can cause short-term and long-term health impacts including eye/lung irritation and impacts to the cardiovascular system. There are no state or national-scale measurements to establish a baseline for ammonia concentrations. However, the National Atmospheric Deposition Program has established the ammonia monitoring network to measure ambient ammonia gas in 100 sites across the U.S. The SCAG region only includes one of these monitoring stations located at Joshua Tree National Park. Monitoring began in 2010 and the highest concentration of ammonia reported was 3.87 µg/m² in September 2012 (National Atmospheric Deposition Program 2023b).

The recent York Fire that occurred within the Mojave National Preserve of San Bernardino County, burned more than 90,000 acres, including Joshua tree woodland habitat. The fire may have been exacerbated, in part, by the proliferation of exotic grasses due to increased nitrogen deposition associated with “nitrogen-laden smog” (Los Angeles Times 2023).

As indicated in Section 3.3, *Air Quality*, of this 2024 PEIR, vehicular NO_x emissions are regulated by CARB. In general, vehicular NO_x emissions are controlled effectively by catalytic converters. A side effect of catalytic converters is the production of NH₃. As a result, although total NO_x is going down in response to regulation, NH₃ has continued to be produced by catalytic converters. NH₃ is an important driver of nitrogen deposition in urban-affected areas and near roadways (Fenn et al. 2018).

As stated above, there are no state or federal standards for measuring NH₃ (ammonia gas), and there is only one monitoring station in the SCAG region that measures ammonia gas. As such, measurement and quantification of NH₃ emissions is unreliable. Further, with no national or state standards, there is no threshold for comparison for CEQA purposes.

3.4.2 REGULATORY FRAMEWORK

FEDERAL

FEDERAL ENDANGERED SPECIES ACT

The USFWS, under the auspices of FESA, manages and protects species listed as Endangered or Threatened. The USFWS can issue a permit for incidental “take” of listed species that can result from otherwise lawful activities. Take, under the federal definition, means to harass, harm (including habitat modification), pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. The permitting process is used to determine if a project would jeopardize the continued existence of listed species and the mitigation measures that would be required to avoid or minimize impacts to listed species. Procedures for obtaining a permit for incidental take are set forth in Section 7 (for federal properties or where federal actions are involved) and Section 10 (for non-federal actions) of FESA (USFWS 1973). Candidate species do not have the full protection of FESA; however, the USFWS advises applicants that candidate species could be elevated to listed species at any time.

USFWS administers FESA, which designates critical habitat for endangered species. This enables USFWS to carry out its mission to conserve, protect, and enhance the nation’s fish and wildlife and their habitats for the continuing benefit of people. Critical habitat areas cannot be disturbed without permission from the USFWS and other federal agencies, depending on land ownership. The USFWS also manages a system of land and waters for the conservation of wildlife and associated ecosystems. These National Wildlife Refuges are primarily managed for the preservation and protection of unique or important resources and ecosystems.

SECTION 10 OF RIVERS AND HARBORS APPROPRIATION ACT OF 1899

Authorization from USACE must be obtained for construction of a structure in or over any navigable water of the U.S., pursuant to Section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 United States Code [USC] Sections 401, 403, 407). Authorization is also needed for structures built near navigable water if they would affect the course, location, condition, or capacity of the water body, as through re-channelization, disposal of fill, and so forth (USEPA 2023e).

MIGRATORY BIRD TREATY ACT OF 1918

The Migratory Bird Treaty Act of 1918 (MBTA) (16 USC Sections 703–712) makes it unlawful to pursue, capture, kill, or possess any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union. Similar to FESA, the MBTA authorizes the Secretary of the Interior to issue permits for incidental take (USFWS 2022b).

FISH AND WILDLIFE COORDINATION ACT

The objective of the Fish and Wildlife Coordination Act (FWCA) (16 USC Sections 661–666c) (as amended by P.L. 116–188 (2020)) is to protect fish and wildlife when federal actions result in the control or modification of a natural stream or body of water, including impoundment, diversion and channel deepening. Under the FWCA, Federal agencies shall consider the effect that water-related projects would have on fish and wildlife resources, prevent loss of or damage to such resources, and develop and improve fish and wildlife resources. The FWCA requires consultation with USFWS and state fish and wildlife agencies to develop measures to protect, develop and improve fish and wildlife resources (USFWS 1934).

SECTION 401 OF THE FEDERAL CLEAN WATER ACT (1972)

Federal Clean Water Act (CWA) Section 401 (33 USC Section 1251) is administered by the State Water Resources Control Board and the Regional Water Quality Control Boards (RWQCB). Section 401 requires that prior to any federal permit or license, any activity, including river or stream crossings during road, pipeline, or transmission line construction, which may result in discharges into waters of the United States, must be certified by the applicable RWQCB. This certification ensures that the proposed activity does not violate federal water quality standards (USEPA 2023a). The SCAG region lies within the jurisdiction of five RWQCBs:

- Colorado River Basin
- Lahontan
- Los Angeles
- Santa Ana
- San Diego

FEDERAL CWA SECTION 404

Federal CWA Section 404 (33 USC Section 1251), which is administered by the USACE, regulates the discharge of dredged and fill material into waters of the United States. USACE has established a series of nationwide permits that authorize certain activities in waters of the United States, provided that a proposed activity can demonstrate compliance with standard conditions. In general, USACE requires an individual permit for an activity that will affect an area equal to or in excess of 0.3 acres of waters of the United States. Projects that result in impacts to less than 0.3 acres of waters of the United States can normally be conducted pursuant to one of the nationwide permits, if consistent with the standard permit conditions. USACE also has discretionary authority to require an Environmental Impact Statement for projects that result in impacts to an area between 0.1 and 0.3 acres. Use of any nationwide permit is contingent on the activities having no impacts to endangered species (USEPA 2023f).

MARINE MAMMAL PROTECTION ACT OF 1972

The Marine Mammal Protection Act of 1972 (MMPA) (16 USC Section 31) protects all marine mammals, including cetaceans (whales, dolphins, and porpoises), pinnipeds (seals and sea lions), sirenians (manatees and dugongs), sea otters, and polar bears within the waters of the United States. The MMPA prohibits the “take” of marine mammals without a permit, with certain exceptions. The definition of “take” under the MMPA is consistent with that of FESA. The MMPA is managed by the federal government. The National Marine Fisheries Service is responsible for managing cetaceans, otariids, and phocids. The USFWS is responsible for managing odobenids, sirenians, otters, and polar bears (USFWS 2022c).

MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT OF 1972

The Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA) (Public Law 92-532), also known as the Ocean Dumping Act, prohibits the dumping of material into the ocean that would unreasonably degrade or endanger human health or the marine environment. Ocean dumping cannot occur unless a permit is issued under the MPRSA. In the case of dredged material, the decision to issue a permit is made by the USACE, using USEPA’s environmental criteria and subject to USEPA’s concurrence (USEPA 2022b).

EMERGENCY WETLANDS RESOURCES ACT OF 1986

The objective of the Emergency Wetlands Resources Act of 1986 (EWRA) (16 USC Sections 3901–3932), dated November 10, 1986, is to promote the conservation of wetlands and help fulfill obligations contained in various migratory bird treaties. Under the EWRA, the USFWS must provide leadership and take action to:

- Intensify cooperative efforts to manage and conserve wetlands
- Intensify efforts to protect wetlands

BALD AND GOLDEN EAGLE PROTECTION ACT

The purpose of the federal Bald and Golden Eagle Protection Act (BGEPA) (16 USC Sections 668–668c, as amended) that is administered by the USFWS protects bald and golden eagles, their nests, eggs, and parts (USFWS 2007). The BGEPA states that no person shall take, possess, sell, purchase, barter, offer for sale, purchase or barter, transport, export, or import any bald or golden eagle alive or dead, or any part, nest, or egg without a valid permit to do so. The BGEPA prohibits the “take” of bald and golden eagles unless pursuant to regulations. Take is defined by the BGEPA as an action “to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb.”

In addition to immediate impacts, this definition covers impacts that result from human-caused alterations initiated around a previously used nest site during a time when eagles were not present. Permits are issued to Native Americans to possess eagle feathers for religious purposes, and salvaged eagle carcasses can be sent to the National Eagle Repository in Colorado, where they are redistributed to Native Americans. Although the bald eagle was removed from the Endangered Species List in June 2007, it is still federally protected under the BGEPA and MBTA described above. In addition, the National Bald Eagle Management Guidelines were published in conjunction with delisting by the USFWS in May 2007 to provide provisions to continue to protect bald eagles from harmful actions and impacts.

Under the BGEPA, a final rule was published in May 2008 in the Federal Register that proposed authorization for take of bald eagles for those with existing authorization under FESA where the bald eagle is covered in an HCP or

the golden eagle is covered as a non-listed species (Federal Register 2008). The final rule also established a new permit category to provide expedited permits to entities authorized to take bald eagles through Section 7 Incidental Take Permits.

WETLANDS – EXECUTIVE ORDER NUMBER 11990

Executive Order (EO) 11990 was issued in May 1977, as a furtherance of the National Environmental Policy Act (NEPA) providing protection of wetlands. Pursuant to the EO, all new construction should be designed to the greatest extent possible to avoid long- and short-term adverse impacts that would lead to the destruction or the modification of wetlands, in order to preserve and enhance the natural and beneficial values of wetlands. Federal agencies, such as the Federal Highway Administration (FHWA), cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds that: (1) there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm (USEPA 1977).

INVASIVE SPECIES – EXECUTIVE ORDER NUMBER 13112

This EO was signed by President Clinton on February 3, 1999. It serves to prevent activities that may promote the introduction and spread of invasive species. The order states that federal agencies whose actions “may affect the status of invasive species shall ... use relevant programs and authorities to ... prevent the introduction of invasive species ... detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner...monitor invasive species populations accurately and reliably ... provide for restoration of native species and habitat conditions in ecosystems that have been invaded.” In order to implement EO 13112, the FHWA has established guidance to prevent the introduction and spread, and promote the control, of invasive plant species on highway rights-of-way. Under EO 13112, federal agencies are prohibited from authorizing, funding, or carrying out actions that are likely to promote or result in the introduction or spread of invasive species unless all feasible measures to minimize the impacts have been analyzed and considered (Federal Register 1999).

NATIONAL ENVIRONMENTAL POLICY ACT

NEPA is implemented by regulations included in the Code of Federal Regulations (40 CFR Section 1500 et seq.), which require careful consideration of the harmful effects of federal actions or plans, including projects that receive federal funds, if they may have a significant adverse effect on the environment. NEPA mandates that all federal agencies carry out their regulations, policies, and programs in accordance with NEPA’s policies of environmental protection. NEPA encourages the protection of all aspects of the environment and requires federal agencies to utilize a systematic, interdisciplinary approach to agency decision-making that will ensure the integrated use of natural sciences such as geology. While NEPA compliance is not required for the Plan, NEPA compliance will be required for transportation improvement projects that will be financed using federal funds. Some development projects (such as low-income housing) also use federal funds and are subject to NEPA. The regulations also require projects requiring NEPA review to seek to avoid or minimize adverse effects of proposed actions and restore and enhance environmental quality as much as possible.

The Council on Environmental Quality (CEQ) oversees NEPA, and USEPA carries out administrative aspects of the NEPA process. NEPA mandates that the federal government shall give appropriate consideration to potential adverse environmental impacts of their major actions, including impacts to biological resources (USEPA 2019a).

STATE

CALIFORNIA FISH AND GAME CODE

SECTION 1600, LAKE OR STREAMBED ALTERATION

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California are subject to the regulatory authority of the CDFW pursuant to Sections 1600 through 1603 of the Code and require preparation of a Streambed Alteration Agreement. Pursuant to the Code, a stream is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that support or have supported riparian vegetation is a stream and is subject to CDFW jurisdiction. Altered or artificial waterways valuable to fish and wildlife are subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water ephemerally during storm events (CDFW 2023d).

SECTION 2080, CALIFORNIA ENDANGERED SPECIES ACT

CESA prohibits the take of listed species except as otherwise provided in state law. Unlike FESA, CESA applies the take prohibitions to species petitioned for listing (state candidates). State lead agencies are required to consult with the CDFW to ensure that any actions undertaken by the lead agency are not likely to jeopardize the continued existence of any state-listed species or result in destruction or degradation of required habitat. CDFW is authorized to enter into Memoranda of Understanding (MOU) with individuals, public agencies, universities, zoological gardens, and scientific or educational institutions to import, export, take, or possess listed species for scientific, educational, or management purposes (CDFW 2023e).

Pursuant to Section 2081 of the California Fish and Game Code, the CDFW may authorize individuals or public agencies to import, export, take, or possess, any state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or MOUs if:

- The take is incidental to an otherwise lawful activity.
- The impacts of the authorized take are minimized and fully mitigated.
- The permit is consistent with any regulations adopted pursuant to any recovery plan for the species.
- The applicant ensures adequate funding to implement the measures required by CDFW.

CDFW shall make this determination based on available scientific information and shall include consideration of the ability of the species to survive and reproduce.

SECTIONS 2800 THROUGH 2840, NATURAL COMMUNITY CONSERVATION PLANNING ACT

Section 2800 through 2840 of the California Fish and Game Code provides a mechanism to conserve natural communities on an ecosystem level while accommodating compatible land use. Specifically, it is used to provide comprehensive management and conservation of multiple wildlife species and the natural communities in which they occur.

The Natural Community Conservation Planning Act of 1991, as amended in 2003, established the Natural Community Conservation Planning program for the protection and perpetuation of the state's biological diversity. The CDFW established the program in order to conserve natural communities at the ecosystem level while

accommodating compatible land use. An NCCP identifies and provides for the regional or area-wide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. The CDFW provides support, direction, and guidance to participants in order to ensure that NCCPs are consistent with CESA.

SECTIONS 3503 AND 3503.5, RESIDENT AND MIGRATORY BIRDS

California Fish and Game Code Sections 3503 and 3503.5 provide regulatory protection to resident and migratory birds and all birds of prey within the State of California, including the regulation of the taking of nests and eggs, unless otherwise provided for by the California Fish and Game Code. Specifically, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, or destroy the nest or eggs of any bird of prey, except as otherwise provided.

SECTIONS 3511, 4700, 5050, AND 5515, FULLY PROTECTED SPECIES

The classification of Fully Protected was the state's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under the state and/or federal Endangered Species Acts. California Fish and Game Code Sections 3511, 4700, 5050, and 5515 state that Fully Protected species (birds, mammals, fish, reptiles, amphibians) or parts thereof may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

CALIFORNIA CODE OF REGULATIONS, TITLE 14, SECTION 460

The regulations of take of furbearing mammals are established within California Code of Regulations (CCR) Title 14, Division 1 (Subdivision 2), Chapter 5. Take is prohibited for several furbearing mammals under 14 CCR Section 460, including, but not limited to, desert kit fox (*Vulpes macrotis arsipus*) and red fox (*Vulpes vulpes*). Title 14 Section 460 is supported by Sections 200, 202, 203, and 4009.5 of the California Fish and Game Code.

CALIFORNIA PORTER-COLOGNE WATER QUALITY CONTROL ACT

Pursuant to the California Porter-Cologne Water Quality Control Act (California Water Code, Division 7), the State Water Resources Control Board is granted ultimate authority over water quality policy for the state of California. The nine regional boards, the RWQCBs, oversee water quality at the local and regional levels, and regulate pollutant and nuisance discharges into waters of the state. Waters of the state are defined as any surface water or groundwater, including saline waters, within the boundaries of the state. Before allowing discharges that may affect the quality of waters of the state, a Report of Waste Discharge must be filed with the RWQCB (SWRCB 2023).

CALIFORNIA WILD AND SCENIC RIVERS ACT

The objective of the California Wild and Scenic Rivers Act of 1972 (Public Resources Code [PRC] Section 5093.50) is the preservation of certain rivers which possess extraordinary scenic, reaction, fishery, or wildlife values. The Act provides permanent protection for some of the state's most outstanding free flowing rivers and prohibits actions such as the construction of dams or other harmful instream activities, except to serve local needs (Water Education Foundation_2023).

CALIFORNIA COASTAL ACT

Through the California Coastal Act (CCA) (PRC Division 20), the California Coastal Commission has unusually broad authority to regulate development in the Coastal Zone. A permit is required for any project that might change the intensity of land use in the Coastal Zone including projects that would require a building or grading permit from the city or county, major vegetation clearing, or subdividing. The coastal zone generally extends three miles seaward and about 1,000 yards inland. In particularly important and generally undeveloped areas where there can be considerable impact on the coastline from inland development, the coastal zone extends to a maximum of five miles inland from mean high tide line. In developed urban areas, the coastal zone extends substantially less than 1,000 yards inland (PRC 2023).

CALIFORNIA NATIVE PLANT PROTECTION ACT

The Native Plant Protection Act (California Fish and Game Code Section 1900–1913) includes measures to preserve, protect, and enhance rare and endangered native plants. The list of native plants afforded protection pursuant to the Native Plant Protection Act includes those listed as rare and endangered under CESA. The Native Plant Protection Act provides limitations by stating “no person will import into this State, or take, possess, or sell within this State” any rare or endangered native plant, except in compliance with provisions of the act. Individual landowners are required to notify the CDFW at least 10 days in advance of changing land uses to allow the CDFW to salvage any rare or endangered native plant material (California Legislative Information 2023j).

CALIFORNIA DESERT NATIVE PLANT ACT

The main purpose of the Desert Native Plant Act (Food and Agriculture Code Division 23) is to preserve and enhance desert native plants by protecting certain species from unlawful harvesting on both public and privately owned lands. The list of desert native plants afforded protection pursuant to the Desert Native Plant Act includes species within the Mojave Desert portions of Los Angeles, San Bernardino, and Riverside Counties. The Desert Native Plant Act provides limitations that no person will harvest, transport, or possession of certain native desert plants without authorization (i.e., valid permit or wood receipt). Authorization for take of native desert plants can be obtained through the sheriff or commissioner of the county where harvesting will occur and subject to county designated fees (CDFW 2023).

NATURAL COMMUNITY CONSERVATION PLANNING ACT, AS AMENDED

The Natural Community Conservation Planning Act of 1991, as amended in 2003 (California Fish and Game Code Sections 2800–2835) established the Natural Community Conservation Planning program for the protection and perpetuation of the state’s biological diversity. The CDFW established the program in order to conserve natural communities at the ecosystem level while accommodating compatible land use. An NCCP identifies and provides for the regional or area-wide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. The CDFW provides support, direction, and guidance to participants in order to ensure that NCCPs are consistent with CESA (CDFW 2023f).

WESTERN JOSHUA TREE CONSERVATION ACT

The Western Joshua Tree Conservation Act (WJTCA) was passed in July 2023 to conserve western Joshua tree and its habitat while supporting the state’s renewable energy and housing priorities (CDFW 2023g). The WJTCA creates a streamlined permitting framework for certain development activities and collects mitigation fees for the

acquisition and conservation of western Joshua tree habitat and other actions to conserve western Joshua Tree. This will offset the impacts of permitted projects that negatively impact western Joshua trees and help to conserve the species on a landscape scale. In addition to authorizing the CDFW to issue permits for the take of western Joshua trees, the WJTCA directs CDFW to develop a conservation plan for western Joshua tree by the end of 2024.

STATE SENATE CONCURRENT RESOLUTION NO. 17 – RELATIVE TO OAK WOODLANDS

The State Senate Concurrent Resolution No. 17, filed with the Secretary of State on September 1, 1989, states that any state agencies having land use planning duties and responsibilities shall assess the effects of their land use decisions or actions within any oak woodlands containing blue oak (*Quercus douglasii*), Engelmann oak (*Q. engelmannii*), valley oak (*Q. lobata*), or coast live oak (*Q. agrifolia*). The State Senate defines “oak woodland” as a five-acre circular area containing five or more oak trees per acre. This resolution requires that state agencies must preserve and protect native oak woodlands to the maximum extent feasible or provide for replacement plantings where blue, Engelmann, valley, or coast live oak are removed from oak woodlands.

STATE WETLAND DEFINITION AND PROCEDURES FOR DISCHARGES OF DREDGED OR FILL MATERIAL TO WATERS OF THE STATE

The State Wetlands Procedures, as prepared by the State Water Resources Control Board, was implemented on May 28, 2020 (revised April 6, 2021; SWRCB 2019). The State Wetlands Procedures include a definition for wetland waters of the State that include (1) all wetland waters of the U.S.; and (2) aquatic resources that meet both the soils and hydrology criteria for wetland waters of the U.S. but lack vegetation.

STATE WILDLIFE ACTION PLAN

Congress created the State and Tribal Wildlife Grants (SWG) program in 2000, recognizing the need to fund programs for the conservation of wildlife diversity (USFWS 2023d). Congress mandated each state and territory to develop a state wildlife action plan (SWAP) by 2005 that provided a comprehensive wildlife conservation strategy to continue receiving federal funds through the SWG program. California’s first SWAP was completed by the California Department of Fish and Game (now the CDFW) and approved by USFWS in 2005. California’s SWAP 2005 identified and targeted Species of Greatest Conservation Need (SGCN) and the critical habitats on which they depend. The SWG program requires SWAP updates at least every 10 years. CDFW prepared SWAP 2015, which is the first comprehensive update of SWAP 2005 (CDFW 2015). Currently under USFWS review for approval, the SWAP 2015 focuses on conservation of the wildlife resources of the nation’s most biologically diverse state using an approach that is in harmony with a growing human population and the need for resilience in the face of a changing climate. Employing an ecosystem approach to conserve and manage diverse habitats and species, SWAP 2015 provides a blueprint for actions necessary to address the highest priorities for conserving California’s aquatic, marine, and terrestrial resources.

REGIONAL CONSERVATION INVESTMENT STRATEGIES, ASSEMBLY BILL 2087

This bill establishes a pilot project for the Regional Conservation Investment Strategy (RCIS) program that encourages public agencies to develop regional conservation planning documents to help local native species populations by protecting, restoring, creating, and reconnecting their habitats. No more than eight regional strategies could be approved prior to January 1, 2020, the date the program sunsets.

SENATE BILL 103

This bill changes Assembly Bill 2087 by (1) removing the January 1, 2020 “sunset” provision and (2) allowing a RCIS to be exempt from the “cap” (i.e., the limit of eight RCISs that may be approved by CDFW) if a state water or transportation infrastructure agency requests approval of the RCIS.

SENATE BILL 147

This bill was approved by the California Governor on July 10, 2023, and amends Sections 395, 3511, 4700, 5050, and 5515 of, and adds Section 2081.15 to, the California Fish and Game Code, relating to fully protected species. The bill authorizes the CDFW, until December 31, 2033, to issue a permit under CESA that would authorize the take of a fully protected species resulting from impacts attributable to the implementation of specified projects, including wind and solar projects, if certain conditions are satisfied, including, among others, the conditions required for the issuance of an incidental take permit.

LOCAL

In addition to federal, state, and county regulations described above, general plans and municipal codes of local jurisdictions in the SCAG region may include conservation elements that identify biological resources, including mature trees and locally important species that are afforded special consideration.

COUNTY GENERAL PLANS AND ORDINANCES

Per state general plan guidelines, county’s general plan is required to contain a conservation element as well as an open space element. These elements are generally where discussions regarding biological resources can be found. Each county’s general plan varies in level of detail and necessary measures to preserve biological resources. The counties within the SCAG area may each have individual codes or ordinances protecting biological resources. A commonly occurring ordinance is a native tree protection or oak tree protection ordinance. These codes and ordinances generally have a limited scope, in this case the removal of specific tree species, which are afforded some level of protection.

The SCAG region encompasses six counties and 191 cities. Each city within the SCAG region has a General Plan with policies related to biological resources as required by the State of California General Plan Guidelines. Each county within the SCAG region has ordinances regulating the removal of native trees and plants, with the exception of Orange County whose tree ordinance has yet to be codified (see **Table 3.4-8, County Biological Resources Policies and Ordinances Relevant to the SCAG Region**).

TABLE 3.4-8 County Biological Resources Policies and Ordinances Relevant to the SCAG Region

COUNTY	COUNTY POLICIES AND ORDINANCES
Imperial ¹	Imperial County Code of Ordinances Chapter 12.44 – Wildlife Protection Imperial County Code of Ordinances Chapter 12.48 – Wild Flowers and Trees
Los Angeles ²	Los Angeles County Code of Ordinances Chapter 22.102 – Significant Ecological Areas Los Angeles County Code of Ordinances Chapter 22.102.070 – Protected Tree Permit Los Angeles County Code of Ordinances Chapter 22.174 – Oak Tree Permits Los Angeles County Code of Ordinances Chapter 12.28 – Brush and Vegetation
Orange ³	Orange County Zoning Code Update Section 7-9-69 – Tree Preservation Ordinance
Riverside ⁴	Riverside County Ordinance No. 559 – Regulating the Removal of Trees
San Bernardino ⁵	San Bernardino County Code of Ordinances Chapter 82.11 – Biotic Resources (BR) Overlay San Bernardino County Code of Ordinances Chapter 88.01 – Plant Protection and Management
Ventura ⁶	Ventura County Non-Coastal Zoning Ordinance Section 8107-25 – Tree Protection Regulations

- Sources: 1. *Imperial County 2016*
2. *Los Angeles County 2015*
3. *Orange County 2018*
4. *Riverside County 1997*
5. *San Bernardino County 2022*
6. *Ventura County 2020*

IMPERIAL COUNTY

The Imperial County Code of Ordinances has established two codes related to biological resources (Chapter 12.44, Wildlife Protection, and Chapter 12.48, Wild Flowers and Trees). The Conservation and Open Space Element of the Imperial County General Plan has established one goal and two policies related to biological resources (Imperial County Planning and Development Services 2016). The County’s two codes, one goal and two supporting policies relevant to the SCAG projects provide protection to wildlife, wild flowers and trees as well as preservation of native plant communities and best restoration practices.

LOS ANGELES COUNTY

The Conservation and Natural Resources Element of the Los Angeles County General Plan 2035 Update has established two goals and 12 policies related to biological resources. Ten of the 12 policies are relevant to the SCAG projects (Los Angeles County Department of Regional Planning 2022). The two goals and ten supporting policies that apply to SCAG activities provide protection to natural habitats, special status species, sensitive plant communities, wildlife corridors, watersheds and other sensitive biological resources. They also act to discourage development in natural or biologically sensitive areas. In addition, the Los Angeles County Code of Ordinances has established an ordinance to protect native oak trees.

Los Angeles County has designated several areas containing sensitive biological resources as Significant Ecological Areas (SEA). SEAs are areas that warrant special management because they contain biotic resources that are considered to be rare or unique; are critical to the maintenance of wildlife; represent relatively undisturbed areas of Los Angeles County Habitat Types; or serve as linkages. Any development within SEAs is subject to the discretion and policies of the Significant Ecological Areas Technical Advisory Committee (SEATAC).

ORANGE COUNTY

The Resources Element of the Orange County General Plan has established one goal and one policy related to biological resources (Orange County Land Use Planning and Subdivision Services 2013). The one goal and one supporting policy relevant to SCAG projects provide protection to wildlife, plants, and vegetation communities.

RIVERSIDE COUNTY

The Riverside County Code of Ordinances has established one ordinance related to biological resources (No. 559, Section 1). The Multipurpose Open Space Element of the Riverside County General Plan has established four policies related to environmentally sensitive lands. The one ordinance and four supporting policies relevant to the SCAG projects provide protection to sensitive species and habitats and wildlife corridors. They also ensure continued participation and compliance with the County's Multi-Species HCP Program, Coachella Valley MSHCP Program, and the San Bernardino kangaroo rat HCP.

SAN BERNARDINO COUNTY

The San Bernardino County Development Code has established one code related to biological resources (Chapter 88.01.010(c)). The Natural Resources Element of the San Bernardino County Countywide Plan has established one goal and eight policies related to biological resources. The one code, one goal, and six supporting policies relevant to SCAG projects provide protection to sensitive species and habitats and wildlife corridors. They also warrant coordination with the appropriate resource management agencies and interested groups to maintain the County's biological resources.

VENTURA COUNTY

The Ventura County Code of Ordinances has established one ordinance related to biological resources. The Conservation and Open Space Element of the Ventura County 2040 General Plan has established one goal and 15 policies related to biological resources (Ventura County 2020). The one code, one goal and 14 supporting policies relevant to SCAG projects provide protection to native trees, sensitive species and habitats, wildlife corridors, and locally important species/communities. They also warrant coordination with the appropriate resource management agencies and interested groups to maintain the County's biological resources.

CITY GENERAL PLAN AND ORDINANCES

In accordance with Sections 6530(c) and (d) of the California Government Code, like the six counties in the SCAG region, all cities are required to have a conservation element and an open space element, as mandatory elements of their general plans. The conservation element provides goals and policies related to conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. One of the six required aspects of the open space element is for planning, conservation, and management of open space for the preservation of natural resources, including habitat for fish and wildlife species; areas required for ecologic and other scientific study purposes; rivers, streams, bays and estuaries; and coastal beaches, lakeshores, banks of rivers and streams, and watershed lands. In addition, many of the cities have ordinances related to protection, conservation and management of natural habitats, and associated plant and animal resources. For example, Los Angeles City Planning drafted a Wildlife District Ordinance, recommended for City Council adoption by the city's Planning and Land Use Management Committee in June 2023, that outlines development standards to reduce impacts on plants, animals, and natural resources located on or adjacent to development projects within a pilot area of the city, the eastern Santa Monica

Mountains (Los Angeles City Planning 2022). The ordinance regulations intend to help to limit the environmental impact of new development and protect and preserve the City's natural resources, ecosystems, and wildlife connectivity. The City of Los Angeles also enacted in April 2006, a Protected Tree ordinance (Ordinance No. 177404) that provides for the protection of native tree species, including species of oak (*Quercus* sp., except scrub oak [*Q. dumosa*]), Southern California black walnut (*Juglans californica*), California bay laurel (*Umbellularia californica*) and western sycamore (*Platanus racemosa*). Ordinance No. 186,873 was enacted in December 2020, to extend protection status to two native shrub species, the Mexican Elderberry (*Sambucus mexicana*) and toyon (*Heteromeles arbutifolia*).

3.4.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to biological resources if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State Habitat Conservation Plan.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis of biological resources considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

Impacts to biological resources were evaluated in accordance with Appendix G of the 2023 CEQA Guidelines. Biological resources within the SCAG region were evaluated at a programmatic level of detail, in relation to the General Plans of the six counties and the 191 cities within the SCAG region; and a review of related literature germane to the SCAG region.

The impact assessment for biological resources focuses on the potentially significant direct effects of the Plan on biological resources within the SCAG region. The analysis considers the 2050 Plan conditions compared to existing conditions (using 2019 as the baseline). This qualitative analysis considers highway, rail, and transit projects that have the potential to result in significant direct impact to special status species or their habitats; have the potential to result in conversion of state-designated sensitive habitats, including those habitats afforded protection pursuant to Sections 401 and 404 of the federal CWA, and/or Section 1600 of the California Fish and Game Code; or have the potential to disrupt migratory corridors, nursery sites, or lands designated for long-term regional conservation of species.

As noted in Section 3.3, *Air Quality*, of this 2024 PEIR, there is no technical guidance on how to analyze nitrogen deposition impacts under CEQA, and there is no national or state standard for comparison. An air dispersion modeling was used to examine potential nitrogen deposition impacts on near-freeway sensitive biological resources to provide a good faith effort at full disclosure and to inform the discussion of human health effects and potential biological resources impacts from nitrogen deposition. See Section 3.3, *Air Quality*, and Table 3.3-21, *Maximum Annual Nitrogen Deposition at Near-Freeway Sensitive Receptors*, of this 2024 PEIR for additional discussion.

The analysis also includes a review of adopted HCPs NCCPs and RCIPs to identify potential conflicts with their provisions. The methodology for determining the significance of these impacts qualitatively compares future Plan conditions to baseline conditions.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT BIO-1 **Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.**

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan would affect biological resources, including sensitive and special status species. Plan implementation could impact desert tortoise, coastal California gnatcatcher, California condor, California spotted

owl Coastal/Southern California DPS, mountain lion Southern California/Central Coast ESU, western Joshua tree, Quino checkerspot butterfly, Crotch bumble bee as well as 253 non-listed sensitive wildlife species. Direct impacts that could occur during construction of some projects include direct loss of sensitive plant and/or wildlife species resulting from injury, death, or disturbance of these species. Direct impacts may also occur through direct habitat loss and fragmentation during construction, displacement of sensitive species due to construction noise or during operation, accidental introduction of non-native plants by construction equipment or during maintenance and general operation, introduction of new lighting sources, and dust and noise during construction and operation.

Construction activities in or adjacent to natural habitats would also increase the risk and frequency of fires that could degrade the function and value of habitats supporting sensitive species (impacts from wildfires are further discussed in Section 3.20, *Wildfire*, of this 2024 PEIR). Further, indirect impacts could result from implementation of the Plan if suitable habitat was encroached upon to the extent that it could no longer support sensitive species. Indirect impacts may include edge effects resulting from habitat fragmentation which can alter habitat structure and composition as well as negatively impact predator-prey dynamics.

Expected significant impacts include direct loss of natural resource lands; disturbance and removal of natural vegetation used by sensitive species; barriers to wildlife movement, habitat fragmentation, and the associated decrease in habitat quality; litter, trampling, light pollution and road noise in previously undisturbed natural areas; increased noise levels related to construction and/or increased traffic volumes; temporal loss of habitat during construction; expansion of public access into previously remote lands; displacement of riparian and wetland habitat; incursion of invasive plants and animals spreading from new transportation corridors; siltation of streams and other water bodies during construction; and the loss of open space that provides habitat for native species.

Impacts to sensitive species may be further exacerbated by the effects of climate change (CDFW 2022). Special-status species are most susceptible to climate change due to their small population sizes and, often, specific suitable habitat conditions required for their survival. The combination of development-related impacts under the Plan and climate change can further reduce available habitat, reduce movement opportunities for wildlife, provide new corridors for invasive species infestations, and increase the risk of fires in open space to the detriment of special status species.

The Plan also aims to preserve, enhance, and restore regional wildlife connectivity through strategies that encourage compact urban development. The Plan focuses new growth in PDAs, existing suburban town centers, and more walkable, mixed-use communities. The Plan recognizes that as population continues to grow, there is increasing pressure on natural lands. Several of the Plan's policies (see Chapter 2, *Project Description*) promote conservation of natural and agricultural lands and restoration of natural habitats and wildlife corridors. SCAG's Sustainable Communities Program supports planning in local jurisdiction to advance the regional growth vision.

The Plan also includes urban greening strategies. Urban greening is a multi-benefit land use strategy that improves the relationship between the built and natural environment. Greening can support reduction in greenhouse gas emissions by sequestering carbon and reduce vehicle miles traveled 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.

Overall, these strategies support redirecting growth away from high value habitat areas to existing urbanized areas. However, the Plan does not preclude development from occurring in these areas.

As described in Existing Setting, above, there are records of and/or habitat for 186 federally or state-listed wildlife species and 112 federally or state-listed plant species, 253 sensitive wildlife species, 925 locally important plant species, and over 5.5 million acres of designated critical habitat for 45 federally listed species in the region. The development of potential projects under the Plan, particularly projects involving large-scale ground disturbance during construction such as grade separation projects, mixed flow lane projects, and rail projects, may result in significant impacts to these species and their habitats. For example, transportation improvement projects in San Bernardino County are anticipated to cross known habitat for the federally threatened desert tortoise, and transportation improvement projects in Los Angeles, Orange, Riverside, and Ventura counties are anticipated to cross critical habitat for the coastal California gnatcatcher.

While the Plan may encourage development toward areas that are already disturbed through the emphasis on compact development and the strategies listed above, some growth and planned transportation projects are still anticipated in areas where sensitive species are located. As discussed in the Connect SoCal 2024 Land Use and Communities Technical Report, implementation of the Plan may lead to increased degraded habitat (including sensitive species) in some areas of the region, while other areas may see improved habitat (including sensitive species). See Table 3 in the Connect SoCal 2024 Land Use and Communities Technical Report for additional details. The level of impact to threatened and/or endangered species, fully protected and sensitive species, locally important species, or associated critical habitat will vary on a project-by-project basis. For example, grade separation projects or rail projects located in areas containing natural, previously undisturbed vegetation are anticipated to have a greater impact on threatened and/or endangered species, fully protected and sensitive species, locally important species, or associated critical habitat than a traffic signal synchronization or lane-restripping project located in an urban environment.

Implementation of the Plan is anticipated to result in direct impacts to various habitat types throughout the region through 2050, including amphibians, birds, mammals, reptiles, and threatened and endangered species. Such impacts would result in associated impacts on sensitive species.

NITROGEN DEPOSITION

As shown in Section 3.3, *Air Quality*, of this PEIR, all air quality management districts within the SCAG region are in attainment for NO₂. However, the Mojave Desert Air Basin, Salton Sea Air Basin, South Central Coast Air Basin, and South Coast Air Basin are all in non-attainment for ozone. ROG and NO_x emissions are precursors to ozone; therefore, the air basins are reducing NO_x emissions to reduce ozone and meet attainment. As a result, NO_x emissions must continue to be reduced in the SCAG region to meet NAAQS attainment standards for ozone. As noted above, one of the technologies used to reduce NO_x emissions from mobile sources (catalytic converters)

results in the production of NH₃ (ammonia gas), which in turn drives nitrogen deposition in urban areas near roadways. Therefore, while NO_x may decrease in the region, NH₃ emissions are still produced by catalytic converters used by vehicles. NH₃ emissions, however, are expected to be reduced both with newer model cars and through the introduction of non-combustion engines. As total VMT increases, NH₃ emissions could continue to rise depending on the composition of the vehicle fleet. As stated above, currently, there are no state or national standards for NH₃ emissions. However, the SCAQMD regulates ammonia emissions through permit limits for stationary sources that install, replace, or modify their air pollution control equipment or combustion equipment to the extent that such equipment is subject to an ammonia emission limit as determined by source testing. Further, ammonia Continuous Emissions Monitoring Systems (CEMS) may be required to demonstrate compliance with an applicable SCAQMD ammonia emission permit limit.

Within the SCAG region, the increase in total VMT and construction of projects under the Plan could lead to an increase in nitrogen deposition that would be harmful to sensitive species and beneficial to some invasive plant species. As discussed in Section 3.17, *Transportation*, total daily VMT in 2050 would increase when compared to total daily VMT for existing conditions (2019). Unlike NO_x, which is shown to decrease despite increasing total VMT, it is unclear whether NH₃ emissions and total deposited nitrogen have the potential to increase with total VMT due to variables such as engine type and age of car.

Nitrogen deposition impacts were quantified for Existing (2019), 2050 No Plan and 2050 Plan using air dispersion modeling tools and NO_x and NH₃ emission factors from the California Air Resources Board's Emission Factor Model (EMFAC).⁴ As there is no national or state standard for comparison and no state or local technical guidance on how to analyze nitrogen deposition impacts on biological resources and impacts on air quality under CEQA, nitrogen deposition results in Table 3.3-21, *Maximum Annual Nitrogen Deposition at Near-Freeway Sensitive Receptors*, in Section 3.3, *Air Quality*, are presented to demonstrate good faith efforts at full disclosure and to inform this discussion as well as the discussion of health effects. As shown on Table 3.3-21, the amount of nitrogen deposition is significantly reduced when compared to existing conditions.

The modeling predicts that NO_x and NH₃ emissions will decrease over time and are proportional to VMT. However, vehicles with catalytic converters control and reduce NO_x emissions but also produce NH₃ as a result. As more combustion engines are removed from the road and newer models with cleaner fuel technologies increase, including zero-emissions cars and trucks, it is expected that NH₃ emissions could decrease over the lifetime of the Plan. The Plan supports fleet changes through the inclusion of transportation strategies aimed at electric fleets and other emerging technologies. For example, LA Metro, the largest bus fleet in the region, is in the process of phasing out all combustion (gasoline and natural gas) buses from its fleet.

Emerging technologies vary when it comes to their effect on VMT and the removal of combustion engines, and the effect on NH₃ emissions. Some of these technologies, such as alternative fuel vehicles, micro-mobility, bikesharing and microtransit, have a mitigating influence on VMT and encourage fleet changes. Others, such as ride-hailing and automated vehicles, are expected to increase VMT if their business models do not adapt, but also have the potential to reduce NH₃ emissions, if not powered by combustion engines. Emerging technologies and transportation strategies are further complicated by new work-at-home and travel patterns as a result of COVID-19 pandemic. An increase in NH₃ emissions may occur due to increasing NO_x-control-equipped vehicles; however,

⁴ It was assumed that NO_x emissions could produce additional NH₃ formation or other compounds that could directly result in nitrogen deposition.

the increasing percentage of ZEV vehicles and reduction of combustion engines on the road will likely result in a decrease in overall nitrogen deposition, but the overall effect is currently uncertain and speculative.

PLAN APPROACH TO HABITAT PROTECTION

There are numerous protected species in the SCAG region (see Tables 1 and 2 in Appendix C of this 2024 PEIR); it is not possible to determine which of these species may be impacted by specific projects. Rather, Connect SoCal 2024 policies and strategies take a multi-species benefit approach to conservation, intended to protect and enhance the SCAG region's high-level of biodiversity. Connect SoCal includes key conservation approaches for the species' survival, including habitat preservation, restoration, and connectivity.

Jurisdictions within the SCAG region are aiming to reduce habitat loss and increase connectivity. For example, Ventura County adopted the Habitat Connectivity and Wildlife Corridor project in March 2019. The project included the development of regulations and revisions to zoning ordinances (see Ventura County Ordinance Nos. 4537 and 4539) and general plan policies to address habitat loss and fragmentation resulting from urban growth. As discussed above, the Wallis Annenberg Wildlife Crossing over the 101 Freeway in the City of Agoura Hills is currently under construction with completion anticipated in 2024.

Furthermore, Connect SoCal 2024 includes the regional advance mitigation programs (RAMP) implementation strategy, as one of the strategies that support natural and agricultural lands preservation. California state law allows agencies to establish voluntary advanced mitigation programs in selected areas, providing an opportunity for infrastructure project lead agencies (such as County Transportation Commissions) to identify potential impacts early in the planning stages and work with regulatory agencies to reduce permitting costs, improve certainty and expedite project delivery. The RAMP enables SCAG to work with implementation agencies to support, establish, or supplement regional advanced mitigation programs for regionally significant transportation projects to help mitigate environmental impacts and reduce per-capita VMT. This allows state and federal agencies to consider the environmental impacts and mitigation needs of multiple planned infrastructure projects and urban development all at once—and satisfy those mitigation requirements early in the project-planning and environmental-review process.⁵ See Connect SoCal 2024 Land Use and Communities Technical Report for more information.

CONCLUSION

This analysis of the Plan's impacts to sensitive plant and wildlife species and their habitats and designated critical habitat is at the programmatic level, and conservatively assumes that species with critical habitat and/or CNDDDB records in a given area may be present in that area. However, the CNDDDB record is also incomplete and may not show all sensitive species present in a given area and project-specific surveys may be required. The level of impact of subsequent projects would be subject to verification at the project-level of environmental review pursuant to CEQA. All projects within the SCAG region would be subject to the provisions of FESA and CESA, as well as Sections 1900–1913, 3511, 4150, 4700, 5050, 5515 of the California Fish and Game Code and Sections 80071–80075 of the State Food and Agriculture Code.

⁵ Note that the RAMP was previously a mitigation measure in the Connect SoCal 2020 PEIR (SMM BIO-2). In this cycle, the RAMP has been elevated to a plan feature which reduces impacts. CEQA permits the incorporation of environmental considerations into the project design, thereby reducing environmental impacts and associated mitigation. See e.g., CEQA Guidelines 15070(b)(1) and CEQA Guidelines Appendix F: Energy Conservation. In the case of the adoption of a plan, policy, regulation or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design (CEQA Guidelines 15126.4(a)(2)).

While the Plan would generally encourages new growth within PDAs it does not preclude growth in GRRAs. Given the scale of the region, plant species and wildlife in the region will continue to be affected. Therefore, the impact to threatened and/or endangered species, fully protected and sensitive species, locally important species, and/or associated critical habitat is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GEN-1.

SMM-BIO-1 SCAG shall support research, programs, and policies that identify, protect, and restore natural habitat corridors and continue support for preserving wildlife corridors and wildlife crossings through information sharing, such as showcasing best practices and regional collaboration forums like SCAG's Natural and Farm Lands Conservation Working Group.

PROJECT-LEVEL MITIGATION MEASURES

PMM-BIO-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to threatened and endangered species, and species that meet the definition of "rare" as defined in CEQA Guidelines Section 15380(b)(2). Such measures may include the following or other comparable measures identified by the lead agency:

- a) Avoid occupied habitat and potentially suitable habitat for threatened, endangered, or rare species, as well as designated critical habitat in project design, wherever practicable and feasible.

Where projects are determined to contain suitable habitat and may impact listed or sensitive species that have specific field survey protocols or guidelines outlined by the USFWS, CDFW, or other local agency, prior to construction, conduct preconstruction focused species surveys that follow applicable protocols and guidelines and are conducted by qualified and/or certified personnel. If sensitive plants or wildlife are present, identify and implement species-specific measures to avoid, minimize, and mitigate for potential impacts in consultation with USFWS or CDFW.

- b) Where avoidance is determined to be infeasible for species protected under FESA, CESA, or local/regional species habitat conservation plan, provide conservation measures to result in no net loss of sensitive habitats and open space and fulfill the requirements of the applicable authorization for incidental take pursuant to Section 7 or 10(a) of the federal ESA, Section 2081 of the California ESA to support issuance of an incidental take permit, and/or as identified in local or regional plans. Conservation strategies to protect the survival and recovery of federally and state-listed endangered and local special-status species may include:
 - i. Impact minimization strategies
 - ii. Contribution of in-lieu fees for in-kind conservation and mitigation efforts
 - iii. Use of in-kind mitigation bank credits
 - iv. Funding of research and recovery efforts
 - v. Habitat restoration

- vi. Establishment of conservation easements
- vii. Permanent dedication of in-kind habitat
- c) Design projects to avoid desert native plants protected under the California Desert Native Plants Act, salvage and relocate desert native plants, and/or pay in lieu fees to support off-site long-term conservation strategies.
- d) Temporary access roads and staging areas will not be located within areas containing sensitive plants, wildlife species or native habitat wherever feasible, so as to avoid or minimize impacts to these species
- e) Develop and implement a Worker Environmental Awareness Program (environmental education) to inform project workers of their responsibilities to avoid and minimize impacts on sensitive biological resources.
- f) Retain a qualified botanist to document the presence or absence of special status plants before project implementation.
- g) Appoint a qualified biologist to monitor construction activities that may occur in or adjacent to occupied sensitive species' habitat to facilitate avoidance of resources not permitted for impact.
- h) Appoint a qualified biologist to monitor implementation of mitigation measures.
- i) Schedule construction activities to avoid sensitive times for biological resources (e.g., steelhead spawning periods during the winter and spring, nesting bird season) and to avoid the rainy season when erosion and sediment transport is increased.
- j) Develop an invasive species control plan associated with project construction
- k) If construction occurs during breeding seasons in or adjacent to suitable habitat, include appropriate sound attenuation measures required for sensitive avian species and other best management practices appropriate for potential local sensitive wildlife
- l) Conduct pre-construction surveys to delineate occupied sensitive species' habitat to facilitate avoidance.
- m) Project design should address the protection of habitat on both sides of a freeway to improve effectiveness of the crossings and may use alternatives to hydrocarbon-based asphalt paving to mitigate for potential hydrocarbon and heavy metal contamination.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to sensitive species, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT BIO-2 Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan would have a substantial adverse effect on riparian habitats and other sensitive natural communities. Plan policies and strategies seek to minimize the conversion of natural landscapes that may contain sensitive plant communities or riparian habitats by focusing new growth in PDAs and more walkable, mixed-use communities and minimizing development in GRRAs. Some jurisdictions in the region have taken steps toward planning comprehensively for conserving natural lands and farmlands, while also accommodating growth. Proposed natural lands conservation strategies described in the Plan are built upon the conservation framework and complements an infill-based approach. While implementation of Plan policies and strategies may guide transportation and urban land use projects toward areas that are already developed, the Plan does not preclude development in GRRAs and projects could occur in areas where riparian habitats or other sensitive natural communities are located. However, it should be noted that all projects within the SCAG region would be subject to the provisions of Section 1600 of the California Fish and Game Code in which a Lake or Streambed Alteration Agreement would need to be obtained prior to the alteration of a state jurisdictional area.

The level of impacts to riparian habitats and sensitive natural communities as a result of the Plan will differ on a project-by-project basis. For example, projects that have the potential to cross waterways or require conversion of natural open space to infrastructure, such as transit or rail projects, highway segment projects, land use development in open space areas, or have the potential to convert state-designated habitats including riparian habitats, would have the potential to have significant impacts on sensitive plant communities and riparian habitats. As described above, the Plan encourages growth within PDAs and minimizes development within GRRAs to support land conservation and allow the built environment and natural resource areas to coexist. Transportation projects that are contained within the alignments of existing transportation corridors, such as bike lane projects and traffic demand management measures, as well as land use development within existing urbanized areas would generally not be expected to have significant impacts on sensitive plant communities and riparian habitats. However, the Plan does not preclude development from occurring in GRRAs.

Of the over 20 million acres of open space in the SCAG region, 322,000 acres are currently identified by the CNDDB as containing state-sensitive plant communities, including 45 riparian and sensitive natural communities. Riparian habitats in the SCAG region may fall under the jurisdiction of the CDFW. It is important to note that mapping of sensitive habitats and sensitive natural communities within the region is incomplete and the likelihood of additional state-sensitive plant communities and riparian habitat to exist within the six-county region is high. Therefore, due to large-scale ground disturbance, including grade separation projects, mixed flow lane projects, and rail projects, and large residential subdivisions within the SCAG region, the Plan may result in significant impacts to these riparian habitats and sensitive plant communities.

According to SCAG SPM data, it is estimated that implementation of the Plan would result in the loss of active river area, as well as result in an increase of degraded watersheds and important riparian buffer area, and fewer acres of natural watershed catchment areas. It is also estimated that the Plan will result in the direct consumption of additional greenfield and natural lands compared to 2019 conditions (see Table 3 in the Connect SoCal 2024 Land Use and Communities Technical Report for additional details). Natural open space areas have a high potential

to contain sensitive plant communities and riparian habitats, and projects constructed in these areas would require individual field analysis at the project-level to determine the level of impacts.

Impacts associated with the conversion of sensitive and riparian habitats would include direct loss and fragmentation of sensitive communities and riparian habitats as projects are developed, temporal loss of habitat in temporary work areas, alteration of hydrology supporting these habitats, and the possible introduction of non-native plants that would degrade existing communities during construction, operation, and maintenance. Further, indirect impacts resulting from the development of transportation projects could include growth induced development of associated infrastructure to support population growth within surrounding areas which may impact sensitive plant communities and riparian habitats through the disturbance and removal of vegetation, alterations to supporting watersheds or changes (addition or removal) of up-stream water sources.

This analysis of impacts of the Plan to sensitive plant communities and riparian habitats is at the programmatic level, and conservatively assumes that all natural open space areas have the potential to contain sensitive plant communities and all waterways have the potential to contain riparian habitat. However, the existing data record is also incomplete and much more sensitive habitat is likely present in the region and project specific surveys may be required. The level of impact of subsequent projects would be subject to verification at the project-level of environmental review pursuant to CEQA.

Given the size and complexity of the region, the impact of the Plan relative to state-designated riparian and other sensitive plant communities, including areas subject to Section 1600 of the California Fish and Game Code is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See **SMM-GEN-1** and **SMM-BIO-1**.

PROJECT-LEVEL MITIGATION MEASURES

See **PMM-BIO-1**.

PMM-BIO-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to riparian habitats and other sensitive natural communities. Such measures may include the following or other comparable measures identified by the lead agency:

- a) Consult with the USFWS and NMFS where such state-designated sensitive or riparian habitats provide potential or occupied habitat for federally listed rare, threatened, and endangered species afforded protection pursuant to the federal ESA.
- b) Consult with the USFS where such state-designated sensitive or riparian habitats provide potential or occupied habitat for federally listed rare, threatened, and endangered species afforded protection pursuant to the federal ESA and any additional species afforded protection by an adopted Forest Land Management Plan or Resource Management Plan for the four national forests in the six-county area: Angeles, Cleveland, Los Padres, and San Bernardino.

- c) Consult with the CDFW where such state-designated sensitive or riparian habitats provide potential or occupied habitat for state-listed rare, threatened, and endangered species afforded protection pursuant to the California ESA, or Fully Protected Species afforded protection pursuant to the State Fish and Game Code.
- d) Consult with the CDFW pursuant to the provisions of Section 1600 of the State Fish and Game Code as they relate to Lakes and Streambeds.
- e) Consult with the USFWS, USFS, CDFW, and counties and cities in the SCAG region, where state-designated sensitive or riparian habitats are occupied by birds afforded protection pursuant to the MBTA during the breeding season.
- f) Consult with the CDFW for state-designated sensitive or riparian habitats where furbearing mammals, afforded protection pursuant to the provisions of the State Fish and Game Code for fur-bearing mammals, are actively using the areas in conjunction with breeding activities.
- g) Require project design to avoid sensitive natural communities and riparian habitats, wherever practicable and feasible. Where practicable and feasible, require upland buffers that sufficiently minimize impacts to riparian corridors.
- h) Where avoidance is determined to be infeasible, develop sufficient conservation measures through coordination with local agencies and the regulatory agency (i.e., USFWS or CDFW) to protect sensitive natural communities and riparian habitats and develop appropriate compensatory mitigation, where required.
- i) Appoint a qualified biologist to monitor construction activities that may occur in or adjacent to sensitive communities.
- j) Appoint a qualified biologist to monitor implementation of mitigation measures.
- k) Schedule construction activities to avoid sensitive times for biological resources and to avoid the rainy season when erosion and sediment transport is increased.
- l) When construction activities require stream crossings, schedule work during dry conditions and use rubber-wheeled vehicles, when feasible. Have a qualified wetland scientist or regulatory specialist determine if potential project impacts require a Notification of Lake or Streambed Alteration to CDFW during the planning phase of projects.
- m) Consult with local agencies, jurisdictions, and landowners where such state-designated sensitive or riparian habitats are afforded protection pursuant to an adopted regional conservation plan.
- n) Install temporary construction fencing and/or mark sensitive habitat to be avoided during construction activities.
- o) Salvage and stockpile topsoil (the surface material from 6 to 12 inches deep) and perennial native plants, when recommended by the qualified ecologist/biologist, for use in restoring native vegetation to areas of temporary disturbance within the project area. Salvage of soils containing invasive species, seeds and/or rhizomes will be avoided as identified by the qualified ecologist/biologist.
- p) Revegetate with appropriate indigenous native vegetation following the completion of construction activities. as identified by the qualified ecologist/biologist.

- q) Complete habitat enhancement (e.g., through removal of non-native invasive wetland species and replacement with more ecologically valuable native species).
- r) Use Best Management Practices (BMPs) at construction sites to minimize erosion and sediment transport from the area. BMPs include encouraging growth of native vegetation in disturbed areas, using straw bales or other silt-catching devices, and using settling basins to minimize soil transport.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to riparian habitats, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT BIO-3 **Have a substantial adverse effect on state or federally protected wetlands (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan would have a substantial adverse effect on wetlands. Policies and strategies in the Plan (e.g., compact growth, TSM, etc.) seek to minimize impacts to federally protected wetlands and waters of the United States as defined by Section 404 of the Clean Water Act by focusing new growth in PDAs and more walkable, mixed-use communities, while discouraging development in GRRAs including wetlands. Impacts would occur where dredge or fill would be required within wetlands or other waters of the United States, particularly where projects need to cross drainages where a clear span to avoid impacts is infeasible. There is potential for comparable significant impacts in areas subject to Section 10 of the Rivers and Harbors Act. The level of impacts to federally protected wetlands and waters of the United States would vary on a project-by-project basis. For example, grade separation projects or transit/rail projects located in areas containing coastal habitats or close to the terminal locations of major rivers or stream systems, where the width of the stream is often largest would be anticipated to have a greater impact on federally protected wetlands and waters of the United States than those located in the upstream portion of the watershed, near the headwaters where drainages are typically more numerous and narrower.

More than 1,000,000 acres of federally protected wetlands and waterways potentially subject to the jurisdiction of the USACE were identified by the National Wetlands Inventory to be present in the SCAG region. In addition, the SCAG region includes more than 80,000 linear miles of USGS blue-line drainages that may contain waters of the United States.

While the Plan encourages projects in areas that are already developed, it does not preclude development in GRRAs and some new projects are still anticipated in areas where wetlands are located. All projects within the

SCAG region would be subject to the provisions of Section 404 of the Federal CWA. Dredge or fill in waters of the United States is subject to the regulatory authority of the USACE pursuant to Section 404 of the Federal CWA.

Similarly, potential project impacts to State protected wetlands under jurisdiction of the California Fish and Game Code Section 1600 are required to obtain a lake or streambed alteration agreement (SAA) from CDFW prior to initiation of project construction. SAA conditions often include provisions for no net loss of protected wetlands through mitigation of preservation, enhancement, restoration or purchase of mitigation credits.

Potential impacts include disruption of streams and wetlands as new projects are developed, and dredge and fill activities associated with development, operation, and maintenance. According to SCAG SPM data, the Plan is anticipated to result in an overall reduction of wetland acreage in the region compared to 2019 conditions. Therefore, the impact of the Plan relative to federally protected wetlands and Waters of the United States is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See **SMM-GEN-1** and **SMM-BIO-1**.

PROJECT-LEVEL MITIGATION MEASURES

See **PMM-BIO-1** and **PMM-BIO-2**.

PMM-BIO-3 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to wetlands. Such measures may include the following or other comparable measures identified by the lead agency.

- a) Conduct an aquatic resources delineation by a qualified biologist or regulatory specialist to identify and map the extent of state and federally protected aquatic resources. Avoid state and federally protected aquatic resources in project design, consistent with the provisions of Sections 404 and 401 of the CWA and Section 1600 of Fish and Game Code, wherever practicable and feasible.
- b) Where the lead agency has identified that a project, or other regionally significant project, has the potential to impact other wetlands or waters, such as those considered waters of the state of California under the State Wetland Definition and Procedures for Dischargers of Dredged or Fill Material to Waters of the State, not protected under Section 404 or 401 of the CWA, seek comparable coverage for these wetlands and waters in consultation with the SWRCB, applicable RWQCB, and CDFW.
- c) Where avoidance of wetlands is determined to be infeasible, develop sufficient conservation measures to fulfill the requirements of the applicable authorization for impacts to federal and state protected aquatic resource to support issuance of a permit under Section 404 of the CWA as administered by the USACE or SAA by the CDFW. The use of an authorized Nationwide Permit or issuance of an individual permit requires the project applicant to demonstrate compliance with USACE's Final Compensatory Mitigation Rule or the CDFW SAA conditions. The USACE reviews projects to ensure environmental impacts to aquatic resources are avoided or minimized as much as feasible. Consistent with the administration's

performance standard of “no net loss of wetlands” a USACE permit may require a project proponent to restore, establish, enhance, or preserve other aquatic resources in order to replace those affected by the proposed project. This compensatory mitigation process seeks to replace the loss of existing aquatic resource functions and area. Project proponents required to complete mitigation are encouraged to use a watershed approach and watershed planning information. The new rule establishes performance standards, sets timeframes for decision making, and to the maximum extent feasible, establishes equivalent requirements and standards for the three sources of compensatory mitigation:

- Permittee-responsible mitigation
 - Contribution of in-kind in-lieu fees
 - Use of in-kind mitigation bank credits
- d) Where avoidance is determined to be infeasible and proposed projects’ impacts exceed an existing Nationwide Permit (NWP) and/or California SWRCB-certified NWP, the lead agency should provide USACE and SWRCB (where applicable) an alternative analysis consistent with the Least Environmentally Damaging Practicable Alternatives in this order of priorities:
- Avoidance
 - Impact Minimization
 - On-site alternatives
 - Off-site alternatives
- e) Require review of construction drawings by a certified wetland delineator as part of each project-specific environmental analysis to determine whether aquatic resources will be affected and, if necessary, perform formal wetland delineation.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan’s Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to a substantial adverse effect on State or Federally Protected Wetlands, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG’s lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT BIO-4 Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan would interfere substantially with the movement of native resident or migratory fish, or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites directly, as a result of habitat conversion to accommodate transportation projects and growth under the Plan, or indirectly through interruption of movement or migratory corridors caused by construction and operation of infrastructure for transportation projects and adjacent projects that may result from improved transportation access. According to SCAG’s SPM data, the Plan would result in the consumption of natural lands, and the degradation of bird habitat. Indicators of wildlife movement are present across the SCAG region.

More than 23 million acres of natural open space in the region can be characterized as having the potential to be suitable for, or aid in, wildlife movement. Furthermore, many bird species breed and are expected to nest within the entire SCAG region, including urban areas. Within that open space is nearly 9.4 million acres of habitat blocks that support native wildlife biodiversity and a significant wildlife connectivity network. These large, intact blocks are connected by more than 4.5 million acres of corridors that are classified as highly beneficial to wildlife movement (CDFW, 2017).

Projects, particularly projects involving large-scale ground disturbance during construction such as grade separation projects, mixed flow lane projects, and rail projects, as well as large-scale land use development could result in significant impacts to the wildlife movement corridors and native wildlife nursery sites. Some projects may also have the potential to cross areas that currently support medium to high permeability for wildlife movement in Imperial, Los Angeles, Riverside, San Bernardino, and Ventura Counties.

These impacts include habitat removal and fragmentation that would disrupt wildlife corridor functionality as new projects are developed, and introduction of lighting and noise during construction and operation that may interrupt wildlife movement and disturb nursery and nesting sites. Construction, operation and maintenance of transportation and development projects across or adjacent to existing wildlife corridors could introduce new barriers to wildlife movement or increase the impact of barriers to wildlife movement by widening the barriers and thus narrowing the corridor. The linear nature of transportation projects increases the potential extent and significance of this effect. Additionally, an increase in wildlife-roadway conflicts as a result of development could increase wildlife injury and fatalities.

One of the goals of the Plan is to preserve, enhance, and restore regional wildlife connectivity through strategies that encourage compact urban development. SCAG’s Regional Data Platform (RDP), a strategic web-based system for data sharing and planning, is designed to help cities, counties and transportation agencies make better land use and transportation infrastructure decisions and to engage with stakeholders for individual projects, such as local and regional land use planning, active transportation planning, greenhouse gas reduction strategies, and development impact assessments. In addition, the Plan’s natural lands strategies will improve natural corridor connectivity by encouraging and facilitating research, programs and policies that identify, protect and restore natural habitat corridors, especially where corridors cross county boundaries. See also discussion of Plan Approach to Habitat Protection under Impact BIO-1 above.

Plan policies and strategies encourage the preservation and creation of wildlife corridors, which is a key consideration in cases where transportation or other related projects may interrupt the flow of wildlife or otherwise cause habitat fragmentation. An example project in the SCAG region, scheduled for completion in 2024, is the Wallis Annenberg Wildlife Crossing proposed for the 101 Freeway in the City of Agoura Hills. This project is the first of its kind in California. The crossing will cross ten lanes of US Highway 101 and an access road, with an estimated 210-foot long by 175-foot-wide structure to facilitate mountain lion and other wildlife movement across currently fragmented habitat regions (National Wildlife Federation/SaveLACougars. 2019).

Indirect impacts to migratory corridors and nursery sites would occur when the functionality of a corridor is degraded after construction of a transportation project and occasionally a land use project. The development of projects through migratory corridors and/or construction on existing transportation facilities that serve as barriers through wildlife corridors would result in an increase in human disturbances locally including an increase in traffic, noise, and lighting. New projects through or adjacent to open space or natural areas could also increase the risk and frequency of wildland fires that would further degrade ecosystem functions that support diverse wildlife populations and corridor function. These projects may also impact pollinator populations or behavior that could further impact local plant community stability and function and degrade existing habitat or the permeability of corridors. Further, indirect impacts resulting from demographic growth associated with these projects may impact wildlife corridors and nursery sites.

Potential impacts from implementation of the Plan may be heightened due to climate change. The changing climate is altering local ecosystems, causing increased stress on wildlife from changes in plant communities and their structure, decreasing pollinator populations, altering precipitation patterns, and many other factors that increase the risk of extinction for wildlife (Xerces Society 2023; Warren et al. 2010). In addition, the changing climate often results in conditions favorable to invasive species that further reduces the ecosystem functions necessary to support wildlife populations. Transportation corridors can act as conduits for invasive species and their adjacency to vehicle traffic can increase wildfire risk, further degrading communities and reducing wildlife corridor value.

In summary, given the scale and complexity of the region, the impact of the Plan relative to conversion of existing native nursery habitat and potential wildlife movement areas is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GEN-1, SMM-AG-1 through SMM-AG-3, SMM-GHG-1, SMM-LU-3, SMM-WF-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-BIO-1 through PMM-BIO-3.

PMM-BIO-4 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial

adverse effects related to wildlife movement. Such measures may include the following or other comparable measures identified by the lead agency:

- a) Consult with the USFS where impacts to migratory wildlife corridors may occur in an area afforded protection by an adopted Forest Land Management Plan or Resource Management Plan for the four national forests in the six-County area: Angeles, Cleveland, Los Padres, and San Bernardino.
- b) Consult with counties, cities, and other local organizations when impacts may occur to open space areas that have been designated as important for wildlife movement related to local ordinances or conservation plans.
- c) Prohibit construction activities within 500 feet of occupied breeding areas for wildlife afforded protection pursuant to Title 14 Section 460 of the California Code of Regulations protecting fur-bearing mammals, during the breeding season.
- d) Conduct a survey to identify active raptor and other migratory nongame bird nests by a qualified biologist at least two weeks before the start of construction at project sites from February 1 through August 31.
- e) Prohibit construction activities with 300 feet of occupied nest of birds afforded protection pursuant to the Migratory Bird Treaty Act, during the breeding season.
- f) Ensure that suitable nesting sites for migratory nongame native bird species protected under the Migratory Bird Treaty Act and/or trees with unoccupied raptor nests should only be removed prior to February 1, or following the nesting season.
- g) When feasible and practicable, minimize impacts to wildlife movement and habitat connectivity and preserve existing and functional wildlife corridors in project design.
- h) Conduct site-specific analyses of opportunities to preserve or improve habitat linkages with areas on- and off-site.
- i) Long linear projects with the possibility of impacting wildlife movement should analyze habitat linkages/wildlife movement corridors on a broad scale to avoid critical narrow choke points that could reduce function of recognized movement corridor.
- j) Review construction drawings and habitat connectivity mapping by a qualified biologist to determine the risk of habitat fragmentation.
- k) Pursue mitigation banking to preserve habitat linkages and corridors (opportunities to purchase, maintain, and/or restore offsite habitat).
- l) When practicable and feasible design projects to promote wildlife corridor redundancy by including multiple connections between habitat patches.
- m) Evaluate the potential for installation of overpasses, underpasses, and culverts to create wildlife crossings in cases where a roadway or other transportation project may interrupt the flow of species through their habitat. Provide wildlife crossings in accordance with proven standards, such as FHWA's Critter Crossings or Ventura County Mitigation Guidelines and in consultation with wildlife corridor authorities.
- n) Install directional wildlife fencing where appropriate to minimize the probability of wildlife injury due to direct interaction between wildlife and roads or construction.

- o) Where avoidance is determined to be infeasible, design sufficient conservation measures through coordination with local agencies and the regulatory agency (i.e., USFWS or CDFW) and in accordance with the respective counties and cities general plans to establish plans to mitigate for the temporal or permanent loss of fish and wildlife movement corridors and/or wildlife nursery sites. The consideration of conservation measures may include the following measures, in addition to the measures outlined in PMM-BIO-1(b), where applicable:
 - Wildlife movement buffer zones
 - Corridor realignment
 - Appropriately spaced breaks in center barriers
 - Stream rerouting
 - Culverts
 - Creation of artificial movement corridors such as freeway under- or overpasses
 - Acquire contiguous adjacent land parcels to be protected in perpetuity from encroachment and development
 - Other comparable measures
- p) Where the lead agency has identified that an RTP/SCS project, or other regionally significant project, has the potential to impact other open space or nursery site areas, seek comparable coverage for these areas in consultation with the USFWS, CDFW, NMFS, or other local jurisdictions.
- q) Incorporate applicable and appropriate guidance (e.g., FHWA-HEP-16-059), as well as best management practices, to benefit pollinators with a focus on native plants.
- r) Implement berms and sound/sight barriers at all wildlife crossings to encourage wildlife to utilize crossings. Sound and lighting should also be minimized in developed areas, particularly those that are adjacent to or go through natural habitats.
- s) Reduce lighting impacts on sensitive species through implementation of mitigation measures such as but not limited to:
 - Use high-pressure sodium and/or cut-off fixtures instead of typical mercury-vapor fixtures for outdoor lighting.
 - Design exterior lighting to confine illumination to the project site.
 - Provide structural and/or vegetative screening from light-sensitive uses.
 - Use non-reflective glass or glass treated with a non-reflective coating for all exterior windows and glass used on building surfaces.
 - Direct architectural lighting onto the building surfaces and have low reflectivity to minimize glare and limit light onto adjacent properties.
- t) Reduce noise impacts to sensitive species through implementation of mitigation measures such as, but not limited to:
 - Install temporary noise barriers during construction.

- Include permanent noise barriers and sound-attenuating features as part of the project design. Barriers could be in the form of outdoor barriers, sound walls, buildings, or earth berms to attenuate noise at adjacent sensitive uses.
 - Provide structural and/or vegetative screening from light-sensitive uses.
 - Ensure that construction equipment are properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds silencers, wraps). All intake and exhaust ports on power equipment shall be muffled or shielded.
 - Use hydraulically or electrically powered tools (e.g., jack hammers, pavement breakers, and rock drills) for project construction to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust should be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves should be used, if such jackets are commercially available, and this could achieve a further reduction of 5 dBA. Quieter procedures should be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.
 - Using rubberized asphalt or "quiet pavement" to reduce road noise for new roadway segments, roadways in which widening or other modifications require re-pavement, or normal reconstruction of roadways where re-pavement is planned
 - Use equipment and trucks with the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds, wherever feasible) for project construction.
 - Use techniques such as grade separation, buffer zones, landscaped berms, dense plantings, sound walls, reduced-noise paving materials, and traffic calming measures.
- u) Include large buffers between sensitive uses and freeways.
- v) Create corridor redundancy to help retain functional connectivity and resilience.
- w) To the extent practicable, avoid construction during dawn and dusk, when wildlife activity is highest.
- y) If protected terrestrial wildlife enter work areas during construction, temporarily halt work to allow wildlife to move through the work area unharmed. A qualified biologist may relocate non-listed wildlife species out of the work area.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to wildlife movement, due to the regional nature of

the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT BIO-5 **Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.**

Significant and Unavoidable Impact – Mitigation Required

The Plan has the potential to conflict with local policies and ordinances related to biological resources. Conflicts may arise when projects included in the Plan, or growth that occurs as a result of the Plan, involve the disturbance or removal of trees or other vegetation protected under city or county ordinances. The following discussion relates to the potential for conflicts with various local policies or ordinances to result in physical impacts to sensitive species and other biological resources, including those applicable to tree preservation. It should be noted, however, that many local jurisdictions' tree preservation policies and ordinances are intended to address issues related to aesthetics and shading in urban areas rather than the protection of biological resources and associated impacts under CEQA.

The Plan encourages growth in PDAs and discourages growth in GRRAs, which supports a more compact development pattern and fewer conflicts with local policies or ordinances protecting biological resources. Nonetheless, impacts are expected to occur because many natural land areas near the edge of existing urbanized areas are vulnerable to development pressure, and transportation projects aimed to improve accessibility might require expansion in existing urbanized areas, or facilitate growth into urbanizing areas. Many urban areas have local ordinances to protect trees, as such the potential for conflicts with tree preservation policies exists not just in undeveloped area but can often occur in urban areas. As infill development increases, there may be pressure to develop on sites with protected trees. Similarly, as density increases, there may be pressure to develop more of a site, whereas previously a development project could have been planned around protected trees. Although many tree preservation ordinances require planting of new trees (i.e., at one to one or greater ratios) to replace the removed trees, smaller infill sites do not always have sufficient space to accommodate more or larger trees. As such, impacts could occur.

Except for Orange County, each county within the SCAG region has ordinances regulating the removal of native trees and plants. While Orange County does not have an adopted tree preservation ordinance in place, a draft tree preservation ordinance has been included as part of the County's "Orange is the New Green" Zoning Code Update that is currently underway (Orange County Department of Public Works 2018). Any conversion of land from open space or removal of protected trees or vegetation in these areas has the potential to conflict with local plans and ordinances. Applicable policies to protect biological resources are articulated in general plans for each county as well as the 191 cities. Many of the general plans in the SCAG region have additional provisions for protection of mature native and landscape trees and requirements for revegetation of landscaped areas using native plants. Each project would be subject to, and have the potential to conflict with, the policies and ordinances applicable to the local government with jurisdiction over the project location. As discussed in Section 3.2, *Agriculture and Forestry Resources*, transportation projects included in the Plan would occur within, and may result in impacts to, the Angeles National Forest and the San Bernardino National Forest and may conflict with the provisions of the Angeles Forest Plan and the San Bernardino National Forest Land Management Plan, respectively.

The level of impact related to conflicts with local policies and ordinances protecting biological resources will vary on a project-by-project basis. For example, grade separation projects, rail projects or land use development

located in areas with a high density of native trees protected by a local tree protection ordinance would be anticipated to have greater conflicts with local policies and ordinances protecting biological resources than a traffic signal synchronization or lane-restriping project located in an urban environment.

In summary, given the scale and complexity of the region, the impact of the Plan with respect to conflicts with local policies and ordinances protecting biological resources, is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GEN-1, SMM-BIO-1, and SMM-LU-3.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-BIO-1 through PMM-BIO-4.

- PMM-BIO-5** In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce conflicts with local policies and ordinances protecting biological resources. Such measures may include the following or other comparable measures identified by the lead agency.
- a) Consult with the appropriate local agency responsible for the administration of the policy or ordinance protecting biological resources.
 - b) Prioritize retention of trees on-site consistent with local regulations. Provide adequate protection during the construction period for any trees that are to remain standing, as recommended by an International Society of Arboriculture (ISA) certified arborist.
 - c) If specific project area trees are designated as "Protected Trees," "Landmark Trees," or "Heritage Trees," obtain approval for encroachment or removals through the appropriate entity, and develop appropriate mitigation measures at that time, to ensure that the trees are replaced. Mitigation trees shall be locally sourced native species, as directed by a qualified biologist.
 - d) Appoint an ISA certified arborist to monitor construction activities that may occur in areas with trees designated as "Protected Trees," "Landmark Trees," or "Heritage Trees," to facilitate avoidance of resources not permitted for impact. Before the start of any clearing, excavation, construction or other work on the site, securely fence off every protected tree deemed to be potentially endangered by said site work. Keep such fences in place for duration of all such work. Clearly mark all trees to be removed.
 - e) Establish a scheme for the removal and disposal of logs, brush, earth, and other debris that will avoid injury to any protected tree. Where proposed development or other site work could encroach upon the protected perimeter of any protected tree, incorporate special measures to allow the roots to breathe and obtain water and nutrients. Minimize any excavation, cutting, filing, or compaction of the existing ground surface within the protected perimeter. Require that no change in existing ground level occur from the base of any protected tree at any time.

Require that no burning or use of equipment with an open flame occur near or within the protected perimeter of any protected tree.

- f) No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees to occur from the base of any protected trees, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials to be operated or stored within a distance from the base of any protected trees. Wires, ropes, or other devices not to be attached to any protected tree, except as needed for support of the tree. Require that no sign, other than a tag showing the botanical classification, be attached to any protected tree.
- g) Thoroughly spray the leaves of protected trees with water periodically during construction to prevent buildup of dust and other pollution that would inhibit leaf transpiration, as directed by the certified arborist.
- h) If any damage to a protected tree should occur during or as a result of work on the site, the appropriate local agency will be immediately notified of such damage. If such tree cannot be preserved in a healthy state, as determined by the certified arborist, replace any tree removed with another tree or trees on the same site deemed adequate by the local agency to compensate for the loss of the tree that is removed. Remove all debris created as a result of any tree removal work from the property within two weeks of debris creation, and such debris shall be properly disposed of in accordance with all applicable laws, ordinances, and regulations. Design projects to avoid conflicts with local policies and ordinances protecting biological resources
- i) Where avoidance is determined to be infeasible, develop sufficient conservation measures to fulfill the requirements of the applicable policy or ordinance, such as to support issuance of a tree removal permit. The consideration of conservation measures may include:
 - Avoidance strategies
 - Contribution of in-lieu fees
 - Planting of replacement trees
 - Re-landscaping areas with native vegetation post-construction
 - Other comparable measures developed in consultation with local agency and certified arborist.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to conflicts with local policies and ordinances protecting biological resources, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT BIO-6 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Significant and Unavoidable Impact – Mitigation Required

The Plan could conflict with the provisions of adopted HCPs and NCCPs in the region because construction or expansion of transportation facilities and urban land uses could occur within or adjacent to lands protected under these plans, constituting a significant impact. Plan policies and strategies seek to reduce conflicts with the provisions of adopted HCPs and NCCPs by focusing new growth in existing urban areas, suburban town centers, and urban areas which are conducive to more compact, densified, infill and mixed-used development. As noted in the Plan's Land Use and Communities Technical Report, Plan policies and strategies aim to de-emphasize growth in natural habitat areas and support redirecting growth away from GRRAs including high value habitat areas to these urbanized areas. Nevertheless, according to SCAG's SPM data, future 2050 conditions with the Plan are anticipated to result in an overall reduction in acres of SCAG Natural Lands Conservation Areas in the region compared to 2019 conditions.

Implementation of Plan projects within areas of adopted HCPs and NCCPs may result in significant impacts. Potential impacts include direct impacts to lands protected under these HCPs and NCCPs as well as potential direct and indirect impacts to plant and animal species and their habitats and connectivity of these habitats afforded protection under these HCPs and NCCPs through conversion of habitat, introduction of invasive species, habitat fragmentation, increased noise, introduction of lighting and noise during construction and operation. At least four HCPs and NCCPs located within the SCAG region contain known provisions for the construction of transportation projects as part of plan-covered activities. In this regard, these plans acknowledge that these types of projects normally result in significant impacts, and thus these plans specify the requirement for mitigation measures. These HCP/NCCPs (Coachella Valley MSHCP, Orange County Transportation Authority NCCP/HCP, West Mojave HCP, and Western Riverside County MSHCP) include considerations for the development of transportation projects as part of plan-covered activities and would be significantly impacted by transportation projects included in the Plan. Therefore, implementation of the Plan could result in impacts related to conflicts with the provisions of four adopted HCPs and NCCPs applicable to the SCAG region and may conflict with other plans. This impact is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See **SMM-GEN-1**, **SMM-BIO-1**, and **SMM-LU-3**.

PROJECT-LEVEL MITIGATION MEASURES

See **PMM-BIO-1** through **PMM-BIO-5**.

PMM-BIO-6 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial

adverse effects on HCPs and NCCPs. Such measures may include the following or other comparable measures identified by the lead agency:

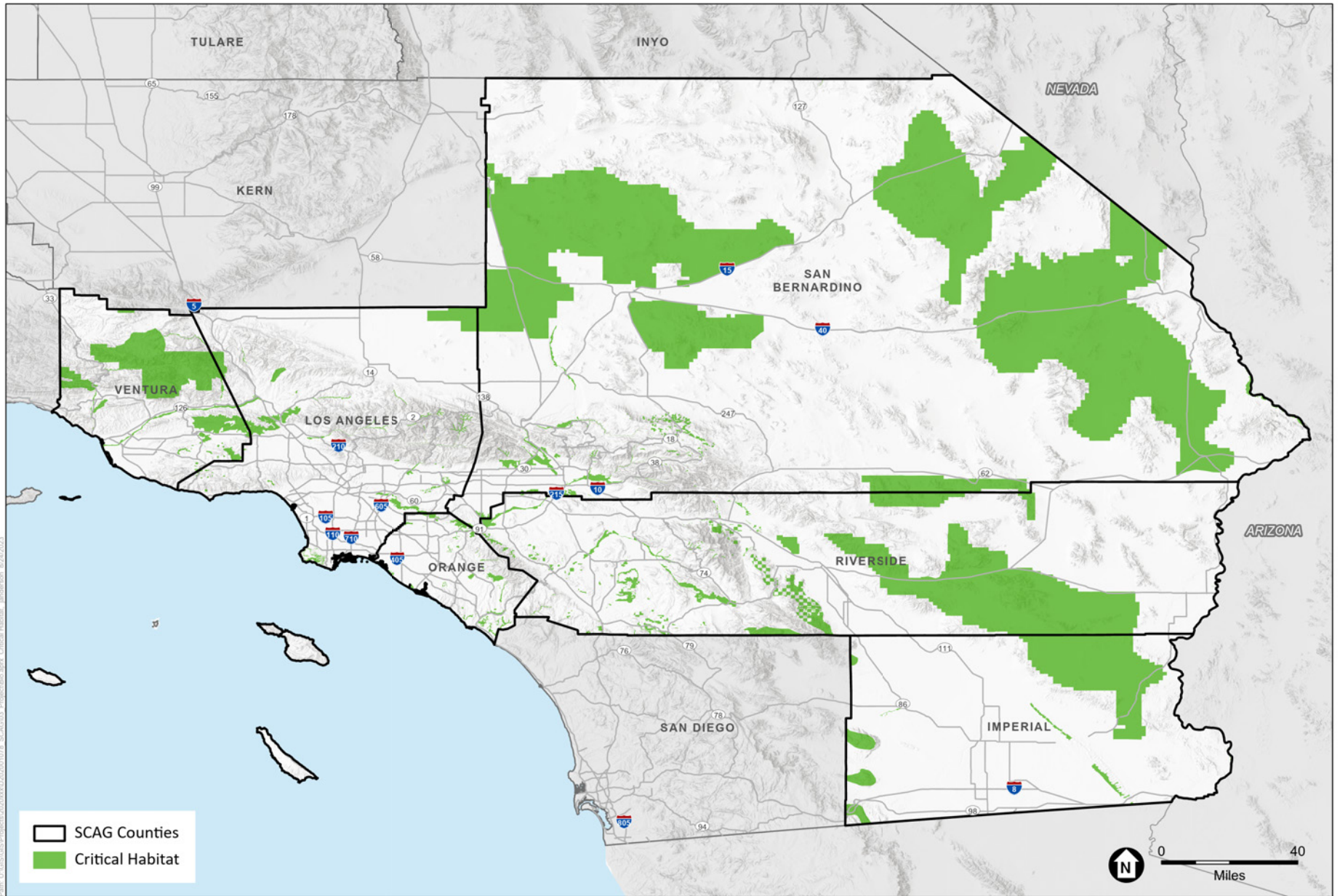
- a) Consult with the appropriate federal, state, and/or local agency responsible for the administration of HCPs or NCCPs.
- b) Wherever practicable and feasible, the project shall be designed to avoid lands preserved under the conditions of an HCP or NCCP.
- c) Where avoidance is determined to be infeasible, develop sufficient conservation measures to fulfill the requirements of the HCP and/or NCCP, which would include but not be limited to applicable authorization for incidental take pursuant to Section 7 or 10(a) of the federal Endangered Species Act and/or Section 2081(b) or 2080.1 of the California Fish and Game Code, to support issuance of an incidental take permit or any other permissions required for development within the HCP/NCCP boundaries. The consideration of additional conservation measures would include the measures outlined in SMM-BIO-2, where applicable.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to HCPs and NCCPs, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of a regional growth forecast and land use pattern, policies and strategies, and individual transportation projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to biological resources, including wildlife movement corridors, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

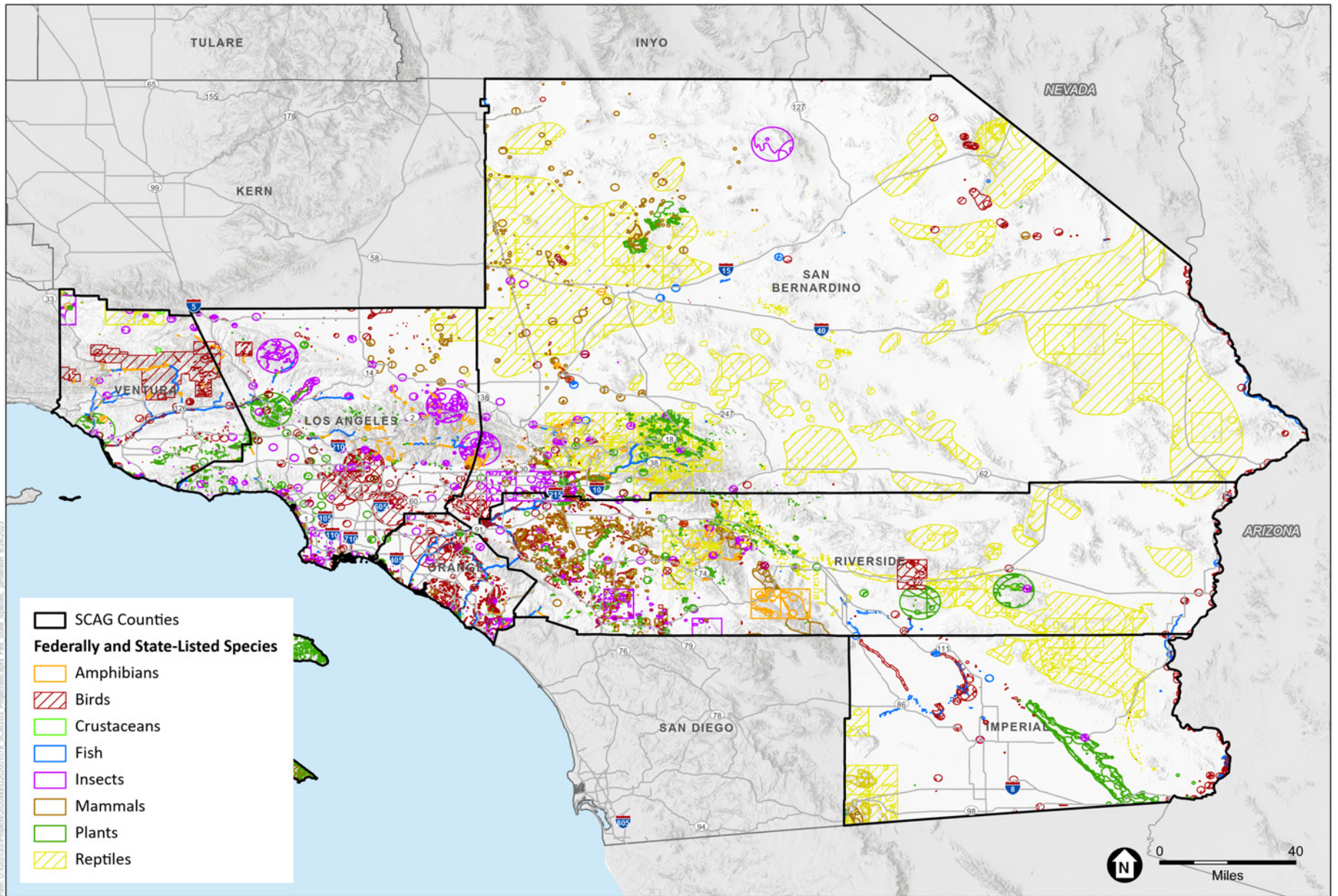


SOURCE: ESA, 2022; USFWS, 2022

Connect SoCal 2024 PEIR

Map 3.4-1
Designated Critical Habitat in the SCAG Region



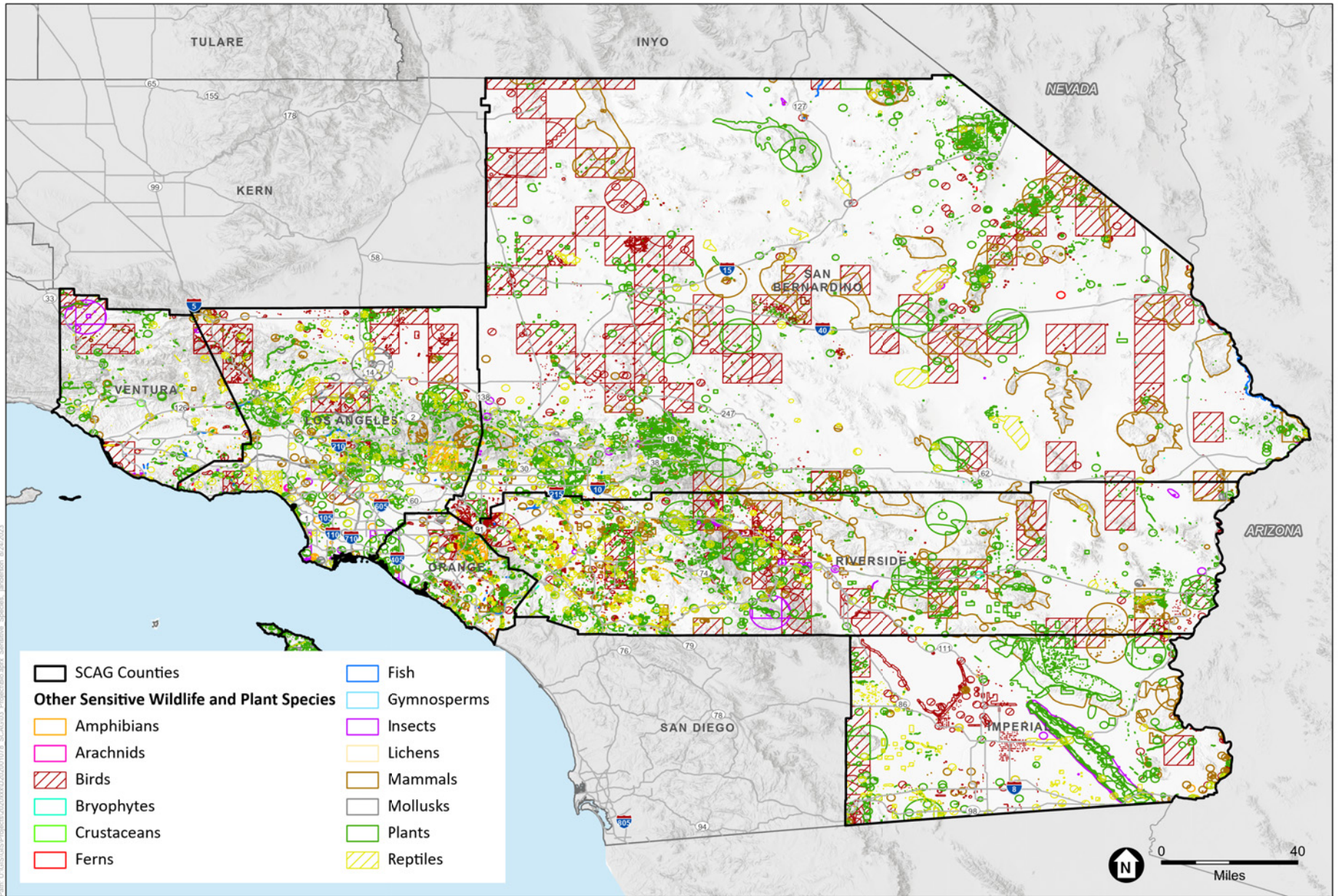


SOURCE: ESA, 2022; CDFW, 2022

Connect SoCal 2024 PEIR

Map 3.4-2
 Federally and/or State-Listed Species Reported in the SCAG Region

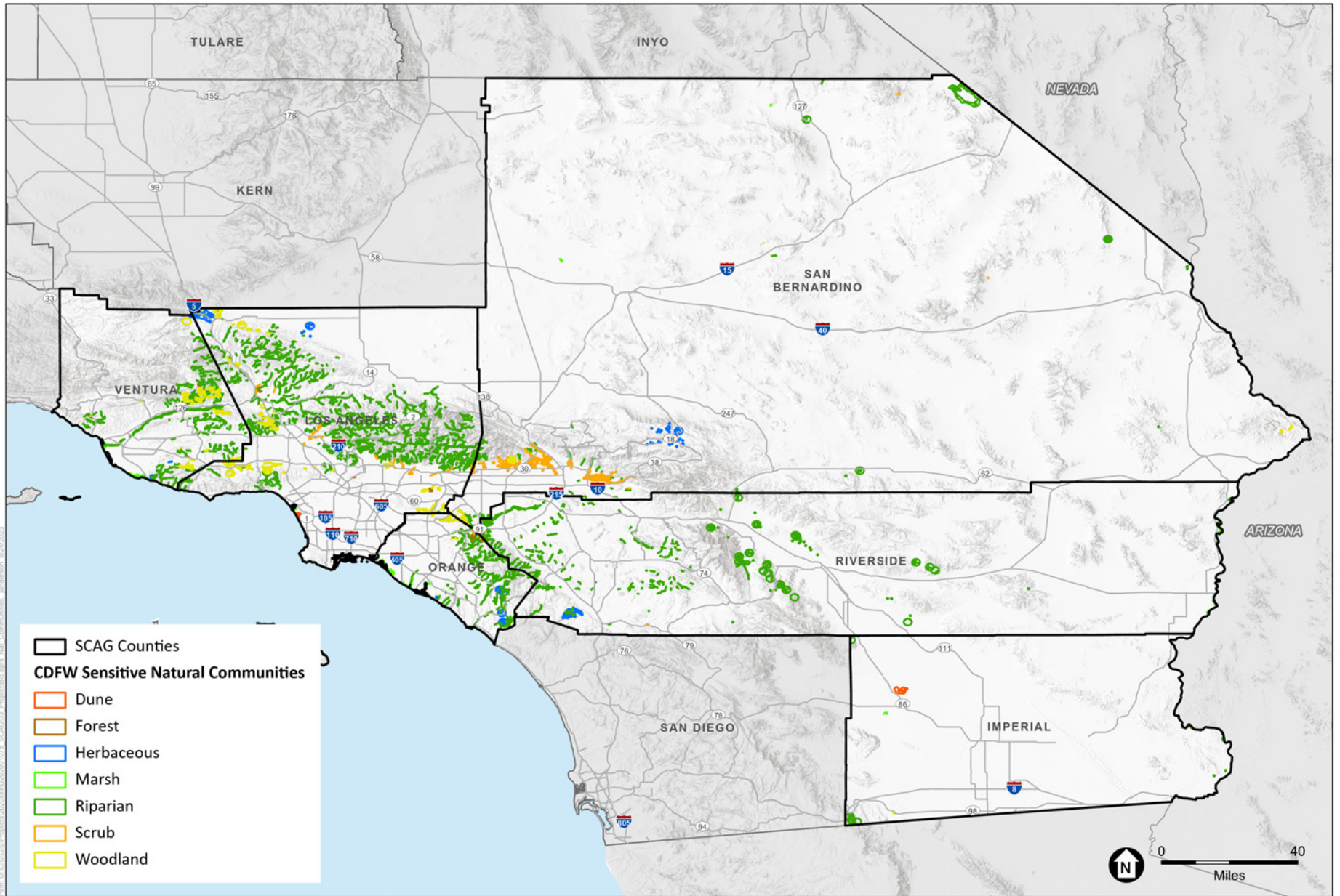




SOURCE: ESA, 2022, CDFW, 2022.

Connect SoCal 2024 PEIR

Map 3.4-3
Other Sensitive Species Reported in SCAG Region

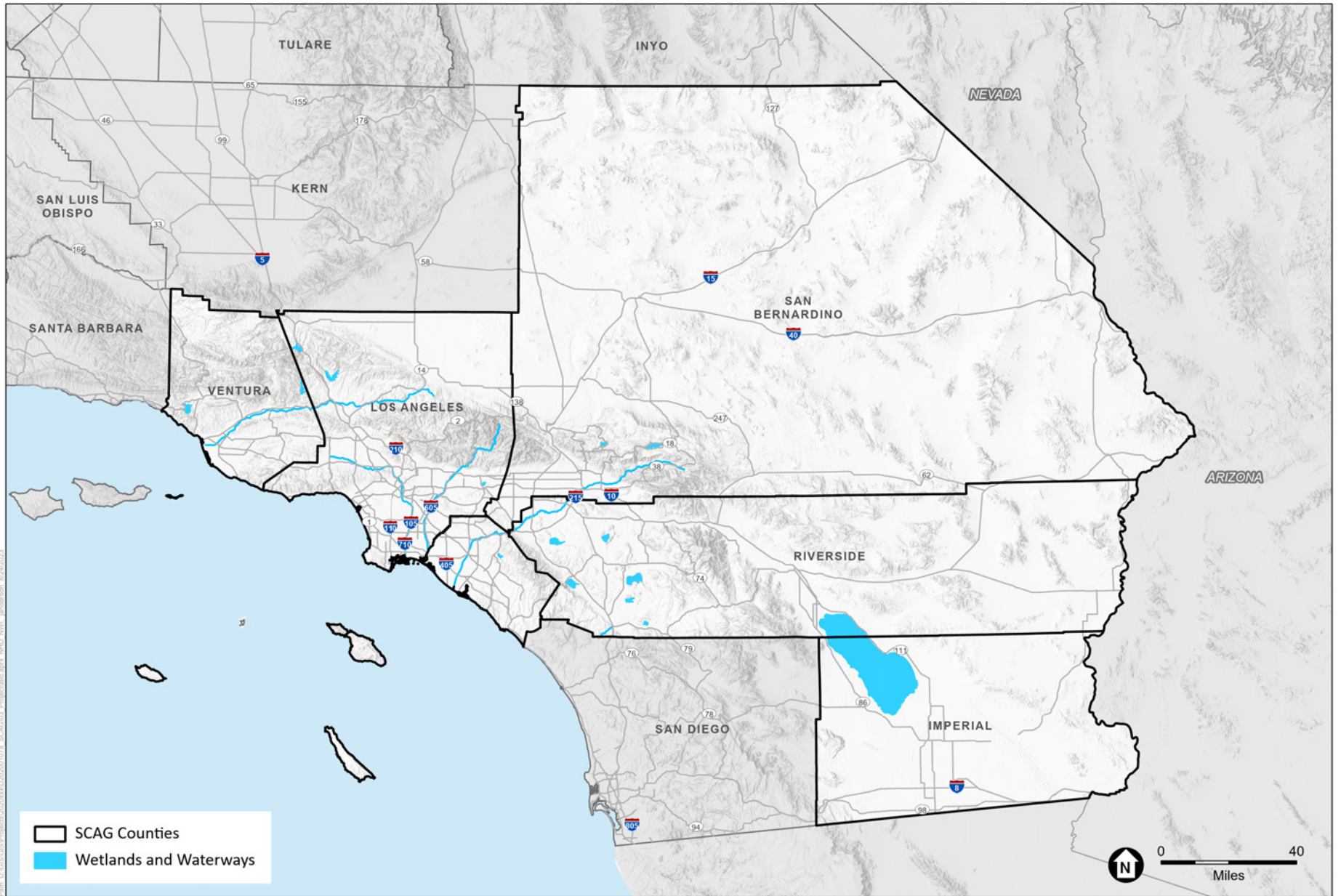


SOURCE: ESA, 2022; CDFW, 2022

Connect SoCal 2024 PEIR

Map 3.4-4
 CDFW Sensitive Natural Communities Reported in the SCAG Region



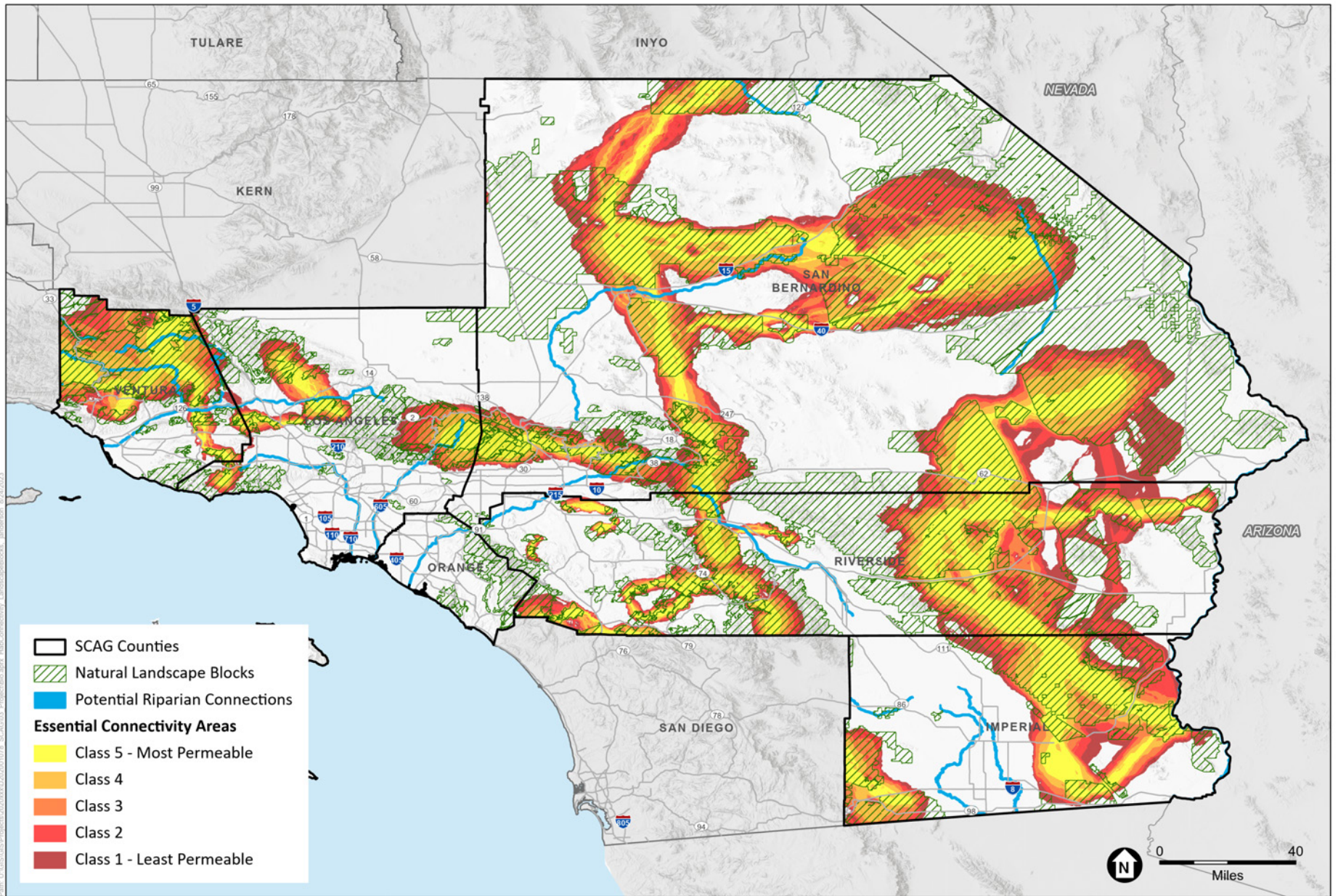


SOURCE: ESA, 2022; NHD, 2022; NWI, 2022

Connect SoCal 2024 PEIR

Map 3.4-5
Wetlands and Waterways Reported in SCAG Region





SOURCE: ESA, 2022; CDFW, 2003; CDFW, 2010; CDFW, 2022

Connect SoCal 2024 PEIR

Map 3.4-6
Essential Habitat Connectivity and Natural Landscape Blocks within the SCAG Region



3.4.4 SOURCES

- Benson, J.F., P.J. Mahoney, J.A. Sikich, L.E.K. Serieys, J.P. Pollinger, H.B. Ernest, and S.P.D. Riley. 2016. Interactions between demography, genetics, and landscape connectivity increase extinction probability for a small population of large carnivores in a major metropolitan area. *Proceedings of the Royal Society B: Biological Science* 283(1837), 20160957.
- Benson, J. F., P.J. Mahoney, T.W. Vickers, J.A. Sikich, P. Beier, S.P.D. Riley, and W. M. Boyce. 2019. Extinction vortex dynamics of top predators isolated by urbanization. *Ecological Applications* 0(0), e01868.
- California Code of Regulations. Title 14, Division 1 (Subdivision 2), Chapter 5: Furbearing Mammals.
- California Department of Fish and Wildlife (CDFW). 2003. Potential Riparian Connections dataset – California Essential Habitat Connectivity (CEHC), Sacramento, CA. <https://map.dfg.ca.gov/metadata/ds0622.html?5.108.311>. Accessed December 27, 2022.
- CDFW. 2017. Natural Landscape Blocks dataset – California Essential Habitat Connectivity (CEHC), Sacramento, CA. <https://map.dfg.ca.gov/metadata/ds0621.html?5.77.14>. Accessed December 27, 2022.
- CDFW. 2015. California State Wildlife Action Plan 2015 Update: A Conservation Legacy for Californians. <https://www.wildlife.ca.gov/SWAP/Final>. Accessed December 21, 2022.
- CDFW. 2022. CNDDDB QuickView Tool in BIOS. BIOS. <https://apps.wildlife.ca.gov/bios/>. Accessed December 14, 2022.
- CDFW. 2023a. Natural Community Conservation Planning (NCCP). <https://www.wildlife.ca.gov/Conservation/Planning/NCCP>, accessed July 5, 2023.
- CDFW. 2023b. California Natural Diversity Database. <https://www.wildlife.ca.gov/Data/CNDDDB>. Accessed July 12, 2023.
- CDFW. 2023c. Natural Communities. Sacramento, CA. <https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities>, accessed July 17, 2023.
- CDFW. 2023d. Lake and Streambed Alteration Program. <https://www.wildlife.ca.gov/Conservation/LSA>. Accessed July 13, 2023.
- CDFW. 2023e. Threatened and Endangered Species. <https://wildlife.ca.gov/Conservation/CESA>. Accessed July 13, 2023.
- CDFW. 2023f. California Desert Native Plants Act. <https://www.wildlife.ca.gov/Conservation/Plants/CA-Desert-Plant-Act>. Accessed July 13, 2023.
- CDFW. 2023g. Western Joshua Tree Conservation Efforts and Permitting. <https://wildlife.ca.gov/Conservation/Environmental-Review/WJT#act-summary>. Accessed August 8, 2023.
- CDFW. 2023h. Regional Conservation Investment Strategies Program. <https://wildlife.ca.gov/conservation/planning/regional-conservation>. Accessed August 8, 2023.
- California Fish and Game Code. Division 1, Chapter 2, Article 1. Authority [200–219].
- California Fish and Game Code. Division 2, Chapter 10: Native Plant Protection [1900–1913].
- California Fish and Game Code. Division 4, Chapter 1.5, Article 3: Taking, Importation, Exportation, or Sale [2080–2085].
- California Fish and Game Code. Division 4, Part 2, Chapter 1: General Provisions [3500–3516].

- California Fish and Game Code. Division 4, Part 3, Chapter 2, Article 1: Trapping Provisions [4000–4012].
- California Fish and Game Code. Division 4, Part 3, Chapter 8: Fully Protected Mammals [4700–4700].
- California Fish and Game Code. Division 5, Chapter 2: Fully Protected Reptiles and Amphibians [5050–5050].
- California Fish and Game Code. Division 6, Part 1, Chapter 1: Miscellaneous [5500–5523].
- California Native Plant Society (CNPS). 2023. Welcome to the Inventory of Rare and Endangered Plants of California. <http://www.rareplants.cnps.org/>. Accessed July 12, 2023.
- California Public Resources Code. 2023. Division 20. California Coastal Act, as amended.
- Ernest, H.B., W.M. Boyce, V.C. Bleich, B. May, S.J. Stiver, S.G. Torres. 2003. Genetic structure of mountain lion (*Puma concolor*) populations in California. *Conservation Genetics* 353–366.
- Ernest, H.B., T.W. Vickers, S.A. Morrison, M.R. Buchalski, W.M. Boyce. 2014. Fractured genetic connectivity threatens a Southern California puma (*Puma concolor*) population. *PLoS One* 9: <https://doi.org/10.1371/journal.pone.0107985>.
- Federal Register. 1999. Executive Order 13112 of February 3, 1999. <https://www.govinfo.gov/content/pkg/FR-1999-02-08/pdf/99-3184.pdf>. Accessed July 12, 2023.
- Federal Register. 2008. Notices. 73(98): 29075–84. May.
- Fenn, M.E., Bytnerowicz, A., Schilling, S.L., Vallano, D.M., Zavaleta, E.S., Weiss, S.B., Morozumi, C., Geiser, L.H., Hanks, K., 2018. On-road emissions of ammonia: An underappreciated source of atmospheric nitrogen deposition. *Science of The Total Environment*, Volume 625, 1 June 2018, Pages 909-919. <https://www.sciencedirect.com/science/article/abs/pii/S0048969717337464>. Accessed August 10, 2023.
- Ustafson, K.D., R.B. Gagne, T.W. Vickers, S.P.D. Riley, C.C. Wilmers, V.C. Bleich, and H.B. Ernest. 2018. Genetic source–sink dynamics among naturally structured and anthropogenically fragmented puma populations. *Conservation Genetics*, 20(2), 215–227.
- Imperial County Planning and Development Services. 2016. Imperial County General Plan: Conservation and Open Space Element. March 8, 2016. <https://www.icpds.com/assets/planning/conservation-open-space-element-2016.pdf#:~:text=The%20Conservation%20and%20Open%20Space%20Element%20applies%20to,and%20supportive%20of%20complementary%20plans%20of%20incorporated%20areas>.
- Los Angeles City Planning. 2022. Wildlife Pilot Study. <https://planning.lacity.org/plans-policies/wildlife-pilot-study#draft-ordinance>. Accessed January 11, 2023.
- Los Angeles County Department of Regional Planning. 2022. Los Angeles County General Plan: Chapter 9: Conservation and Natural Resources Element. https://planning.lacounty.gov/wp-content/uploads/2022/11/9.0_gp_final-general-plan-ch9.pdf.
- Los Angeles Times. 2023. The Mojave Desert is burning in California’s biggest fire of year, torching Joshua trees. <https://www.latimes.com/california/story/2023-07-31/york-fire-in-mojave-desert-grows-to-77000-acres>. Accessed August 8, 2023.
- Mattoni, R., G. F. Pratt, T. R. Longcore, J. F. Emmel, and J. N. George. 1997. The endangered quino checkerspot butterfly, *Euphydryas editha quino* (Lepidoptera: Nymphalidae). *Journal of Research on the Lepidoptera* 34:99–118.
- National Atmospheric Deposition Program. 2023a. Ammonia Monitoring Network (AMoN). <http://nadp.slh.wisc.edu/amon/>.

- National Atmospheric Deposition Program. 2023b. Ammonia Monitoring Network (AMoN). <http://nadp.slh.wisc.edu/amon/>.
- National Park Service (NPS). 2023a. Studying Reactive Nitrogen Deposition. https://www.nps.gov/articles/cave_n_study.htm.
- NPS. 2023b. Studying Reactive Nitrogen Deposition. https://www.nps.gov/articles/cave_n_study.htm.
- National Wildlife Federation/SaveLACougars. 2019. <https://savelacougars.org/>. Accessed November 22, 2019.
- Orange County Department of Public Works. 2018. Orange Is The New Green - Zoning Code Update, Draft "Tree Preservation Ordinance," Subarticle 4, Section 7-9-69. <https://ocds.ocpublicworks.com/service-areas/oc-development-services/planning-development/current-projects/all-districts-3>. Accessed August 11, 2023.
- Orange County Land Use Planning and Subdivision Services. 2013. Orange County General Plan 2005: Chapter 6: Resources Element. p. VI-32. <https://ocds.ocpublicworks.com/sites/ocpwocds/files/import/data/files/40235.pdf>. Accessed July 13, 2023.
- Pardo, L.H. 2010. USDA. *Assessment of Nitrogen Deposition Effects and Empirical Critical Loads of Nitrogen for Ecoregions of the United States*. https://www.nrs.fs.fed.us/pubs/gtr/gtr_nrs80.pdf.
- Riley, S.P.D., L.E.K. Serieys, J.P. Pollinger, J.A. Sikich, L. Dalbeck, R.K. Wayne, and H.B. Ernest. 2014. Individual behaviors dominate the dynamics of an urban mountain lion population isolated by roads. *Current Biology* 24(17), 1989–1994.
- Sawyer, J.O., T. Keeler-Wolf, and J. M. Evens. 2009. *A Manual of California Vegetation, Second Edition*. California Native Plant Society, Sacramento, CA.
- Science News. 2016. Study finds wide-reaching impact of nitrogen deposition on plants. <https://www.sciencedaily.com/releases/2016/03/160330174216.htm>.
- Smith, J.A., J.P. Suraci, M. Clinchy, A. Crawford, D. Roberts, L.Y. Zanette, and C.C. Wilmers. 2017. Fear of the human 'super predator' reduces feeding time in large carnivores. *Proceedings of the Royal Society B: Biological Science* 284: 20170433. <http://dx.doi.org/10.1098/rspb.2017.0433>.
- Spencer, W.D., P. Beier, K. Penrod, K. Winters, C. Paulman, H. Rustigian-Romsos, J. Strittholt, M. Parisi, and A. Pettler. 2010. California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California. Prepared for California Department of Transportation, California Department of Fish and Game, and Federal Highways Administration.
- State Water Resources Control Board (SWRCB). 2023. Porter-Cologne Water Quality Control Act. https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf.
- U.S. Army Corps of Engineers (USACE). 1987. Corps of Engineers Wetland Delineation Manual. Vicksburg, MS. <http://www.cpe.rutgers.edu/Wetlands/1987-Army-Corps-Wetlands-Delineation-Manual.pdf>.
- U.S. Department of Agriculture (USDA). 2007. General Technical Report WO- 76B. January 2007. United States Department of Agriculture, Forest Service. Washington, DC. <https://www.fs.usda.gov/research/publications/misc/73327-wo-gtr-76b-mcnab2007.pdf>.
- U.S. Environmental Protection Agency (USEPA). 1977. Protection of Wetlands (Executive Order 11990). <https://www.epa.gov/cwa-404/protection-wetlands-executive-order-11990>. Accessed July 12, 2023.
- USEPA. 2019a. Section 10 of the Rivers and Harbors Appropriation Act of 1899. <https://www.epa.gov/cwa-404/section-10-rivers-and-harbors-appropriation-act-1899>. Accessed July 12, 2023.
- USEPA. 2019b. Summary of the National Environmental Policy Act. <https://www.epa.gov/laws-regulations/summary-national-environmental-policy-act>. Accessed July 12, 2023.

- USEPA. 2022a. Revising the Definition of “Waters of the United States”: Final Revised Definition of “Water of the United States.” <https://www.epa.gov/wotus/revising-definition-waters-united-states>. Accessed January 4, 2023.
- USEPA. 2022b. Summary of the Marine Protection, Research, and Sanctuaries Act. <https://www.epa.gov/laws-regulations/summary-marine-protection-research-and-sanctuaries-act>. Accessed December 21, 2022.
- USEPA. 2023a. Clean Water Act Section 401: Overview of CWA Section 401 Certification. <https://www.epa.gov/cwa-401/overview-cwa-section-401-certification>. Accessed July 12, 2023.
- USEPA. 2023b. *EnviroAtlas Fact Sheet: Total Annual Nitrogen Deposition*. <https://enviroatlas.epa.gov/enviroatlas/DataFactSheets/pdf/ESN/TotalAnnualNitrogenDeposition.pdf>.
- USEPA. 2023c. *EnviroAtlas Fact Sheet: Total Annual Oxidized Nitrogen Deposition*. <https://enviroatlas.epa.gov/enviroatlas/DataFactSheets/pdf/ESN/TotalAnnualOxidizedNitrogenDeposition.pdf>.
- USEPA. 2023d. *EnviroAtlas Fact Sheet: Total Annual Reduce Nitrogen Deposition*. <https://enviroatlas.epa.gov/enviroatlas/DataFactSheets/pdf/ESN/TotalAnnualReducedNitrogenDeposition.pdf>.
- USEPA. 2023e. Final Rule: The Navigable Waters Protection Rule. <https://www.epa.gov/wotus/final-rule-navigable-waters-protection-rule#:~:text=The%20final%20%22Revised%20Definition%20of,%20the%20rule%20and%20litigation>. Accessed August 9, 2023.
- USEPA. 2023f. Overview of Clean Water Act Section 404. <https://www.epa.gov/cwa-404/overview-clean-water-act-section-404>. Accessed July 12, 2023.
- USEPA. 2023g. Progress Report: Acid Deposition. https://www3.epa.gov/airmarkets/progress/reports/acid_deposition_figures.html#figure3.
- U.S. Fish and Wildlife Service (USFWS). 1934. Fish and Wildlife Coordination Act. <https://www.govinfo.gov/content/pkg/COMPS-3003/pdf/COMPS-3003.pdf>.
- USFWS. 1973. Endangered Species Act of 1973. <https://www.epa.gov/laws-regulations/summary-endangered-species-act>. Accessed July 17, 2023.
- USFWS. 2007. National Bald Eagle Management Guidelines. May. <https://fws.gov/media/national-bald-eagle-management-guidelines>. Accessed July 12, 2023.
- USFWS. 2022. Environmental Conservation Online System (ECOS): USFWS Threatened & Endangered Species Active Critical Habitat Report. <https://ecos.fws.gov/ecp/report/table/critical-habitat.html>. Accessed December 21, 2022.
- USFWS. 2022c. Marine Mammal Protection Act. <https://www.fws.gov/international/laws-treaties-agreements/us-conservation-laws/marine-mammal-protection-act.html>. Accessed December 21, 2022.
- USFWS. 2022b. Migratory Bird Treaty Act. <https://www.fws.gov/law/migratory-bird-treaty-act-1918>. Accessed December 21, 2022.
- USFWS. 2023. Critical Habitat under the Endangered Species Act. <https://www.fws.gov/southeast/endangered-species-act/critical-habitat/>. Accessed July 12, 2023.
- USFWS. 2023d. State Wildlife Grants. <https://www.fws.gov/library/collections/state-wildlife-grants-swg#:~:text=Established%20in%202000%2C%20State%20Wildlife%20Grants%20provide%20money,conservation%20need%20identified%20in%20State%20Wildlife%20Action%20Plans>. Accessed July 13, 2023.
- USFWS. 2023c. National Wetlands Inventory Map. <https://www.fws.gov/wetlands/data/Mapper.html>. Accessed July 17, 2023.

- USFWS. 2023a. Endangered Species. <https://www.fws.gov/endangered/>. Accessed July 12, 2023.
- USFWS. 2023a. Press Release: Service seeks public comment on California spotted Owl Endangered Species Act listing proposal. <https://www.fws.gov/press-release/2023-02/public-comment-sought-proposal-list-california-spotted-owl>. Accessed July 19, 2023.
- U.S. Geological Survey (USGS). 2022. National Hydrography Dataset (NHD). <https://hydro.nationalmap.gov/arcgis/rest/services/nhd/MapServer>. Accessed December 22, 2022.
- Ventura County. 2022a. 2022 Ventura County Planning Division Locally Important Animal List. https://vcrma.org/docs/images/pdf/planning/conservation/Final_2022_Locally_Important_Animals.pdf.
- Ventura County Planning and Development Services. 2016. Ventura County General Plan: Goals, Policies And Programs. P. 16. <https://docs.vcrma.org/images/pdf/planning/plans/Goals-Policies-and-Programs.pdf>.
- Ventura County Resource Management Agency (VCRMA). 2018. Habitat Connectivity and Wildlife Movement Corridors. <https://vcrma.org/habitat-connectivity-and-wildlife-movement-corridors>. Accessed January 15, 2019.
- Vickers, T. W., J. N. Sanchez, C. K. Johnson, S. A. Morrison, R. Botta, T. Smith, and W. M. Boyce. 2015. Survival and mortality of pumas (*Puma concolor*) in a fragmented, urbanizing landscape. *PLoS ONE* 10(7), 1–18.
- Warren, R., J. Price, A. Fischlin, S. de la Nava Santos, and G. Midgley. 2010. Increasing impacts of climate change upon ecosystems with increasing global mean temperature rise. *Climatic Change* 106: 141–177 (2011). Published August 21, 2010. <https://doi.org/10.1007/s10584-010-9923-5>.
- Water Education Foundation. California Wild and Scenic Rivers Act. <https://www.watereducation.org/aquapedia/california-wild-and-scenic-rivers-act>. Accessed July 13, 2023.
- The Xerces Society for Invertebrate Conservation. 2023. Pollinator Conservation Strategy, Yolo Natural Heritage Program (HCP/NCCP). Portland Or/Sacramento CA. <https://www.xerces.org/pollinator-conservation>. Accessed July 17, 2023.

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3.5 CULTURAL RESOURCES

This section of the 2024 PEIR describes cultural resources within the SCAG region, sets forth the regulatory framework that addresses cultural resources, and analyzes the potential impacts of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental reviews to reduce identified impacts as appropriate and feasible. Records search results, data tables, and other supporting information utilized in this section are provided in **Appendix D-1, Properties Listed on the National Register of Historic Places in the SCAG Region**, **Appendix D-2, National Historic Landmarks within the SCAG Region**, **Appendix D-3, California State Historical Landmarks in the SCAG Region**, and **Appendix D-4, California Points of Historical Interest in the SCAG Region**, of this 2024 PEIR. Tribal Cultural Resources are addressed in Section 3.18, *Tribal Cultural Resources*.

3.5.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for cultural resources follow:

- *AD*: The term Anno Domini (AD or A.D.) is used to label calendar years and is intended to be in relation to the beginning of the life of Jesus as a reference date.
- *Alluvium*: An unconsolidated accumulation of stream-deposited sediments, including sands, silts, clays or gravels.
- *Archaeological site*: Defined by the National Register of Historic Places (NRHP) as the place or places where the remnants of a past culture survive in a physical context that allows for the interpretation of these remains. Archaeological remains usually take the form of artifacts (e.g., fragments of tools, vestiges of utilitarian, or non-utilitarian objects), features (e.g., remnants of walls, cooking hearths, or midden deposits), and ecological evidence (e.g., pollen remaining from plants that were in the area when the activities occurred). The Office of Historic Preservation (OHP) defines an archaeological "site" as consisting of three or more related resources discovered in one locality. In the event of archaeological discovery, the resources are collected, documented, and curated at an educational institution, such as a school or a museum. These can include prehistoric (pre-European contact), historic (post-contact), or combination thereof.
- *BCE*: The term BCE is the abbreviation for Before the Common Era, and is used to label calendar years, prior to the demarcation of AD.
- *BP*: "Before present," which is defined as before 1950 and is used by archaeologists in conjunction with the commonly used term, AD.
- *Cretaceous*: An interval of time relating to, or denoting the last period of the Mesozoic era, between the Jurassic and Tertiary periods.
- *CE*: The term Common Era (CE) is an alternative naming of the calendar era AD.
- *Formation*: A laterally continuous rock unit with a distinctive set of characteristics that make it possible to recognize and map from one outcrop or well to another. The basic rock unit of stratigraphy.

- *Holocene*: An interval of time relating to, or denoting the present epoch, which is the second epoch in the Quaternary period, including the time period from approximately 11,000 years ago to the present.
- *Historic period*: The period that begins with the arrival of the first nonnative population and thus varies by area. In 1769, Gaspar de Portolá became the first European to enter the San Fernando Valley, initiating the historic period in the SCAG region.
- *Historical resource*: Defined by CEQA as any object, building, structure, site (including archaeological sites), area, place, record, or manuscript that is listed in, or is eligible for listing in, the California Register of Historical Resources (CRHR); officially designated or recognized as historically significant by a local government pursuant to a local initiative or resolution; or identified as significant in a historic resource survey conducted in accordance with the requirements of the CRHR statute (PRC Section 5024.1(g)). Properties listed in, or determined eligible for listing in, the NRHP are automatically listed in the CRHR and are therefore historical resources under CEQA.
- *Isolate*: An isolated artifact or small group of artifacts that appear to reflect a single event, loci, or activity. It may lack identifiable context but has the potential to add important information about a region, culture, or person. Isolates are not considered under CEQA to be significant and, thus, do not require avoidance or mitigation under CEQA. All isolates located during the field effort, however, are recorded, and the data are transmitted to the appropriate California Historical Resources Information System (CHRIS) Information Center.
- *Miocene*: An interval of time relating to or denoting the fourth epoch of the Tertiary period, between the Oligocene and Pliocene epochs, from approximately 23 to 5.5 million years ago.
- *Native American sacred site*: An area that has been, and often continues to be, of religious significance to Native American peoples, such as an area where religious ceremonies are practiced or an area that is central to their origins as a people. They also include areas where Native Americans gather plants for food, medicinal, or economic purposes.
- *Oligocene*: An interval of time relating to or denoting the third epoch of the Tertiary period, between the Eocene and Miocene epochs, from approximately 34 to 23 million years ago.
- *Outcrop*: A rock formation that is visible on earth's surface.
- *Paleocene*: An interval of time, relating to, or denoting the earliest epoch of the Tertiary period, between the Cretaceous period and the Eocene epoch.
- *Phase I archaeological resources survey*: A literature review (background research), consultation with the NAHC, and fieldwork. Fieldwork consists of a physical inspection of the cultural resources survey area, generally through pedestrian surveys, or by other means when appropriate. The purpose of the Phase I survey is to identify the cultural resources known or likely to be present in the initiative's impact area and in the immediate vicinity.
- *Phase II archaeological investigation*: Consisting of testing and evaluation, is conducted when the results of a Phase I investigation indicate the presence of potentially significant cultural resources. Phase II investigations are intended to evaluate the historical significance of historic and prehistoric archaeological sites and require a comprehensive and detailed scope of work, a research design, and fieldwork. Surface and subsurface testing is conducted during Phase II investigations to collect the data necessary to establish historical significance of archaeological sites.
- *Phase III data recovery*: Implemented on those archaeological sites that are determined to be significant as a result of the Phase II investigations and that cannot feasibly be avoided or preserved with initiative

implementation. Phase III efforts typically involve the collection of data intended to answer scientific or research questions that have been formulated during Phase II testing and formalized by a comprehensive Phase III research design. Most commonly, Phase III data collections are implemented on sites determined to be significant as a means of mitigating the effects of an initiative through salvage, recordation, and archiving of scientific data associated with the site.

- *Pleistocene*: An interval of time, relating to or denoting the first epoch of the Quaternary period, between the Pliocene and Holocene epochs, from approximately 2.6 million years ago to 11,000 years ago.
- *Pliocene*: An interval of time, relating to or denoting the last epoch of the Tertiary period, between the Miocene and Pleistocene epochs, from approximately 5.5 to 2.6 million years ago.
- *Plutonic igneous rocks*: Igneous rocks that have crystallized beneath the earth's surface.
- *Prehistoric period*: The era prior to AD 1769. The later part of the prehistoric period (post-AD 1542) is also characterized as the protohistoric period in some areas, which marks a transitional period during which native populations began to be influenced by European presence resulting in gradual changes to their lifeways.
- *Quaternary*: The most recent Period in geological time; includes the Pleistocene and Holocene Epochs.
- *Secretary of the Interior' Standards and Guidelines*: The Standards are a series of concepts about maintaining, repairing, and replacing historic materials, as well as designing new additions or making alterations. The Guidelines offer general design and technical recommendations to assist in applying the Standards to a specific property. Together, they provide a framework and guidance for decision-making about work or changes to a historic property. The Standards and Guidelines can be applied to historic properties of all types, materials, construction, sizes, and use. They include both the exterior and the interior and extend to a property's landscape features, site, environment, as well as related new construction. Federal agencies use the Standards and Guidelines in carrying out their historic preservation responsibilities. State and local officials use them in reviewing both federal and nonfederal rehabilitation proposals. Historic district and planning commissions across the country use the Standards and Guidelines to guide their design review processes. The Standards offer four distinct approaches to the treatment of historic properties—preservation, rehabilitation, restoration, and reconstruction with Guidelines for each. The Standards for the Treatment of Historic Properties are regulatory for all grant-in-aid projects assisted through the national Historic Preservation Fund. The Standards for Rehabilitation, codified in 36 CFR 67, are regulatory for the review of rehabilitation work in the Historic Preservation Tax Incentives program. The Guidelines are advisory, not regulatory.
- *Unique Archeological Resource*: Pursuant to Section 21083.2 of the PRC, a unique archaeological resource includes artifacts or sites that meet any one or all the following criteria:
 - It has made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States;
 - It is associated with the lives of persons important to California's past;
 - It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; and/or
 - It has yielded, or may be likely to yield, information important to the prehistory or history of California.

CULTURAL CONTEXT

A brief context statement is provided below. The cultural context is organized by three broad temporal-cultural periods: Prehistoric, Protohistoric, and Historic. The Prehistoric and Historic periods are further divided into

chronological sequences. The Prehistoric and Protohistoric periods are intended to reflect Native American history prior to Spanish presence in the SCAG region (Prehistoric period) and shortly after (Protohistoric period). The Prehistoric time periods are based primarily on archaeological data, whereas information from the Protohistoric period also includes oral history and historical records. The divisions within the Historic period are based strictly on the years of Spanish, Mexican, and American government administration. As a result, the Protohistoric period has some overlap with the Spanish period, the former being affiliated exclusively with Native Americans, the latter with Europeans or other non-Native Americans.

PREHISTORIC SETTING

The chronology of Southern California is typically divided into three general time periods: the Early Holocene (11,000 to 7,600 Before Present [B.P.]), the Middle Holocene (7,600 to 3,600 B.P.), and the Late Holocene (3,600 B.P. to A.D. 1769). This chronology is manifested in the archaeological record by particular artifacts and burial practices that indicate specific technologies, economic systems, trade networks, and other aspects of culture.

EARLY HOLOCENE

While it is not certain when humans first came to California, their presence in southern California by about 11,000 B.P. has been well documented. At Daisy Cave, on San Miguel Island, cultural remains have been radiocarbon dated to between 11,100 and 10,950 B.P. (Byrd and Raab 2007). During the Early Holocene (11,000 to 7,600 B.P.), the climate of southern California became warmer and more arid and the human population, residing mainly in coastal or inland desert areas, began exploiting a wider range of plant and animal resources (Byrd and Raab 2007).

MIDDLE HOLOCENE

During the Middle Holocene (7,600 to 3,600 B.P.), there is evidence for the processing of acorns for food and a shift toward a more generalized economy. The first evidence of human occupation in the Los Angeles area dates to at least 9,000 years B.P. and is associated with the Millingstone cultures (Wallace 1955; Warren 1968). Millingstone cultures were characterized by the collection and processing of plant foods, particularly acorns, and the hunting of a wider variety of game animals (Byrd and Raab 2007; Wallace 1955). Millingstone cultures also established more permanent settlements that were located primarily on the coast and in the vicinity of estuaries, lagoons, lakes, streams, and marshes where a variety of resources, including seeds, fish, shellfish, small mammals, and birds, were exploited. Early Millingstone occupations are typically identified by the presence of handstones (manos) and millingstones (metates), while those Millingstone occupations dating later than 5,000 B.P. contain a mortar and pestle complex as well, signifying the exploitation of acorns in the region.

LATE HOLOCENE

During the Late Holocene (3,600 B.P. to A.D. 1769), many aspects of Millingstone culture persisted, but a number of socioeconomic changes occurred (Erlandson 1994; Wallace 1955; Warren 1968). The native populations of southern California were becoming less mobile, and populations began to gather in small sedentary villages with satellite resource-gathering camps. Increasing population size necessitated the intensified use of existing terrestrial and marine resources (Erlandson 1994). Evidence indicates that the overexploitation of larger, high-ranked food resources may have led to a shift in subsistence towards a focus on acquiring greater amounts of smaller resources, such as shellfish and small-seeded plants (Byrd and Raab 2007). Around 1,000 B.P., there was an episode of sustained drought, known as the Medieval Warm Period, occurred. While this climatic event did not appear to reduce the human population, it did lead to a change in subsistence strategies in order to deal with the substantial stress on resources. The Late Holocene marks a period in which specialization in labor emerged, trading

networks became an increasingly important means by which both utilitarian and non-utilitarian materials were acquired, and travel routes were extended. Although the intensity of trade had already been increasing, it now reached its zenith, with asphaltum (tar), seashells, and steatite being traded from southern California to the Great Basin. Major technological changes appeared as well, particularly with the advent of the bow and arrow, which largely replaced the use of the dart and atlatl.

PROTOHISTORIC SETTING

The Protohistoric period does not have a clear timeline; however, this time period is generally thought to have begun with the first interactions between foreigners (Spanish, Mexicans, and American cultures) and native peoples in 1542 and ended in 1769 with the establishment of Spanish colonial settlements (Lightfoot and Simmons 1998). The native cultures in the protohistoric period evolved from traditions that date back to as early as A.D. 1000, and in most areas much earlier. Archaeological data has shown that native cultures in California were more complex in the protohistoric period than after their populations had been decimated by disease and their economic resources had been taken away by non-native settlers in the historic period (King 1978). The SCAG region was once inhabited by least 11 different Native American groups, including: Mohave, Halchidhoma, Southern Paiute/Chemehuevi, Kawaiisu, Kitanemuk, Cahuilla, Tataviam, Gabrielino, Juaneño (Luiseño), Chumash, and Serrano.

Native American territorial limits in Southern California during the first European contact are different than today's political boundaries. It is known that boundaries between tribes overlapped and migrated within their general borders. Between 1851 and 1852, the United States Army mandated California's tribes to sign 18 treaties renouncing rights to their traditional lands in exchange for reservations. The treaties were not approved, were lost, and forgotten. In 1891, small, scattered reservations were created in Southern California (Miller 2013). A total of 17 reservations were established within Imperial (Martinez and Fort Yuma,) Riverside (Torres-Martinez, Cabazon, Cahuilla, Augustine, Santa Rosa, Ramona, Pechanga, Soboba, Agua Caliente, Colorado River, and Morongo) and San Bernardino Counties (Fort Mojave, San Manuel, Colorado River, Chemehuevi, and Twentynine Palms) in the SCAG region. No reservations were created in Los Angeles, Ventura, or Orange Counties.

HISTORIC SETTING

SPANISH PERIOD (A.D. 1769 TO 1821)

Sustained European exploration in the region began in 1769, when Gaspar de Portolá and a small Spanish contingent began their exploratory journey along the California coast from San Diego to Monterey. The expedition passed through present-day Castaic Junction in August of 1769 (Worden, Undated). This was followed in 1776 by the expedition of Father Francisco Garcés (Johnson and Earle 1990).

In the late 18th century, the Spanish began establishing missions in California and forcibly relocating and converting native peoples. Within the SCAG region, a total of four missions were established, including San Buenaventura in Ventura County, San Fernando Rey de España and San Gabriel [Arcángel](#) in Los Angeles County, and San Juan Capistrano in Orange County. Mission San Buenaventura was founded on March 31, 1782, by Father Junipero Serra in the city of Ventura. Mission San Fernando Rey de España was founded on September 8, 1797, by Father Lasuén in the neighborhood of Mission Hills, in the city of Los Angeles. Mission San Gabriel [Arcángel](#) was founded on September 8, 1771, by Father Serra in the city of San Gabriel. Mission San Juan Capistrano was originally founded on October 30, 1775, by Father Lasuén. However, a few weeks later an Indian revolt took place in San Diego, so the founding padres and soldiers left San Juan Capistrano to aid with the fight. As soon as the

fighting had decreased, Father Serra re-founded Mission San Juan Capistrano on November 1, 1776 (California Missions Foundation.org 2023).

MEXICAN PERIOD (A.D. 1821 TO 1848)

After Mexico gained its independence from Spain in 1821, Los Angeles became the capital of the California territory in 1835 (Gumprecht 2001). Mexico continued to promote settlement of California with the issuance of land grants. In 1833, Mexico began the process of secularizing the missions, reclaiming most mission lands and redistributing them as land grants. According to the terms of the Secularization Law of 1833 and Regulations of 1834, at least a portion of the lands would be returned to the Native populations, but this did not always occur (Milliken et al. 2009).

Many ranchos continued to be used for cattle grazing by settlers during the Mexican Period. Hides and tallow from cattle became a major export for Californios (native Hispanic Californians), many of whom became wealthy and prominent members of society. The Californios led generally easy lives, leaving the hard work to vaqueros (Hispanic cowhands) and Indian laborers (Pitt 1994; Starr 2007).

AMERICAN PERIOD (A.D. 1848 TO PRESENT)

Mexico ceded California to the United States as part of the Treaty of Guadalupe Hildalgo in 1848. California officially became a state in 1850. While the treaty recognized right of Mexican citizens to retain ownership of land granted to them by Spanish or Mexican authorities, the claimant was required to prove their right to the land before a patent was given. The process was lengthy and generally resulted in the claimant losing at least a portion of their land to attorney's fees and other costs associated with proving ownership (Starr 2007).

When the discovery of gold in northern California was announced in 1848, gold seekers and settlers began to pour into California leading to confrontation between native groups and the newcomers. In response to increasing hostilities between non-local, desert region Native American tribes and local tribes and incoming American settlers, President Fillmore sent Edward F. Beale, Superintendent of Indian Affairs for California, to investigate and devise a solution in 1852. Beale suggested a two-pronged approach: establish a reservation for local tribes and establish a military presence.

As the population of California increased, the price of beef skyrocketed and Californios reaped the benefits. However, a devastating flood in 1861, followed by droughts in 1862 and 1864, led to a rapid decline of the cattle industry; over 70 percent of cattle perished during these droughts (McWilliams 1946; Dinkelspiel 2008). These natural disasters, coupled with the burden of proving ownership, caused many Californios to lose their lands during this period. Former ranchos were subsequently subdivided and sold for agriculture and residential settlement (Gumprecht 2001; McWilliams 1946).

EXISTING CONDITIONS

This section characterizes the existing conditions related to cultural resources in the SCAG region, which encompasses an area of more than 38,000 square miles within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The discussion of cultural resources includes archaeological resources associated with various time periods, as well as non-archaeological resources such as buildings, structures, and other elements of the historical built environment.

PREVIOUSLY RECORDED CULTURAL RESOURCES

Records searches for Connect SoCal 2024 were conducted through the South Coastal Information Center (SCIC) on October 17, 2022, South Central Coastal Information Center (SCCIC) on December 2, 2022, and Eastern Information Center (EIC) on October 18, 2022, see Appendix D. The records searches included acquiring a count of all recorded cultural resources, including archaeological and historic-architectural/built-environment resources. In addition, the SCCIC and EIC also have a category in their records for “unknown resources” for San Bernardino County and Riverside County, respectively. The EIC also has a category in their records for protohistoric resources within Riverside County. A total sum of all cultural resources is provided by county in **(Table 3.5-1, Cultural Resources Listed in the California Historical Resources Information System [CHRIS])**. The results of the records searches indicate that a total of 112,860 cultural resources have been identified within the SCAG region. Of the 112, 860 resources, approximately 18,817 are located within Imperial County; approximately 18,120 are located within Los Angeles County; approximately 5,392 are located within Orange County; approximately 28,787 are located within Riverside County; approximately 38,566 are located within San Bernardino County; and approximately 3,178 are located within Ventura County.

TABLE 3.5-1 Cultural Resources Listed in the California Historical Resources Information System (CHRIS)

COUNTY	CHRIS CENTER	APPROXIMATE COUNT OF CULTURAL RESOURCES (COMBINED ARCHAEOLOGICAL, HISTORIC ARCHITECTURAL, UNKNOWN, AND PROTOHISTORIC)
Imperial*	SCIC	18,817
Los Angeles**	SCCIC	18,120
Orange**	SCCIC	5,392
Riverside***	EIC	28,787
San Bernardino**	SCCIC	38,566
Ventura**	SCCIC	3,178
SCAG Region Total		112,860

Source: SCIC 2022; SCCIC 2022; EIC 2022)

Table Notes:

* The SCIC’s system does not differentiate between archaeological resources (historic and prehistoric) and historic architectural resources. So, a total number of resources was provided by the SCIC to ESA.

** The SCCIC provided total numbers of archaeological and non-archaeological resources (historic architectural) within Los Angeles, Orange, and Ventura counties – the sum of these two types of resources is provided in the table for each county. The SCCIC also provided a count of archaeological, non-archaeological (historic architectural), and unknown resources – the sum of these three types of resources is provided in the table under San Bernardino County.

*** The EIC provided a total count of resources in Riverside County, as well as a total of sites marked as unknown, total of sites marked as prehistoric, total of sites marked as historic, and total sites marked as protohistoric. The total count of resources in Riverside County is used and provided in the table. The EIC also indicated that some sites overlap, whereas the recorder marked a site, both prehistoric and historic, or any other combination.

The NRHP is a register that serves as the official list of buildings, structures, objects, sites, and districts considered by the federal government as worthy of preservation. There are currently over 95,000 listings in NRHP, of which 1,631 are in the SCAG region **(Table 3.5-2, National Register of Historic Places Properties within the SCAG Region)**. A complete list of these resources can be found in Appendix D-1 of this 2024 PEIR.

TABLE 3.5-2 National Register of Historic Places Properties within the SCAG Region

COUNTY	LISTED	APPROVED	ACCEPTED	ELIGIBLE	TOTAL
Imperial	10	0	0	13	23
Los Angeles	595	2	0	145	742
Orange	544	0	0	31	575
Riverside	96	0	0	7	103
San Bernardino	99	0	0	34	133
Ventura	39	0	0	16	55
Total	1,383	2	1	246	1,631

Source: NPS 2022

Also recognized by the federal government are National Historic Landmarks (NHL). These are districts, sites, buildings, structures, and objects that the Secretary of the Interior has determined to be significant to the nation’s history and culture or illustrate events or places that were important contributions to the historical development of the United States. There are currently over 2,500 listings in the NHL Database of which 29 are in the SCAG region (**Table 3.5-3, National Historic Landmarks within the SCAG Region**). A full accounting of these landmarks can be found in Appendix D-2.

TABLE 3.5-3 National Historic Landmarks within the SCAG Region

COUNTY	STRUCTURE	BUILDING	SITE	DISTRICT	TOTAL
Imperial	0	0	0	0	0
Los Angeles	13	5	2	3	23
Orange	2	0	0	0	2
Riverside	2	0	0	0	2
San Bernardino	0	1	0	0	1
Ventura	0	0	0	1	1
Total	17	6	2	4	29

Source: NPS 2023e

The State of California maintains a record of districts, places, sites, and buildings determined to hold historic or prehistoric significance. Two registers, administered by the California OHP and the SHRC, are part of the California Department of Parks and Recreation. There are over 1,000 listings in the register of CHL, of which 226 are located in the SCAG region (**Table 3.5-4, California Historical Landmarks within the SCAG Region**), and there are 285 CPHI listings located in the SCAG region (**Table 3.5-5, California Points of Historical Interest within the SCAG Region**).

TABLE 3.5-4 California Historical Landmarks within the SCAG Region

COUNTY	PREHISTORIC, PROTOHISTORIC	PREHISTORIC, PROTOHISTORIC, SPANISH	PREHISTORIC, PROTOHISTORIC, MEXICAN	PREHISTORIC, AMERICAN	PROTOHISTORIC	SPANISH	MEXICAN	AMERICAN	TOTAL
Los Angeles	0	0	0	0	0	4	1	9	14
Orange	1	1	0	1	0	17	13	71	104
Riverside	0	1	0	0	0	2	4	19	26
San Bernardino	5	1	1	0	1	3	4	12	27
Imperial	1	1	1	0	0	4	7	27	41
Ventura	0	0	0	0	0	7	4	3	14
Total	7	4	2	1	1	37	33	141	226

Source: OHP 2022c

TABLE 3.5-5 California Points of Historical Interest within the SCAG Region

COUNTY	POINTS OF HISTORICAL INTEREST
Imperial	4
Los Angeles	64
Orange	22
Riverside	72
San Bernardino	119
Ventura	4
Total	285

Source: OHP 2022c

The Built Environment Resources Directory (BERD) offers information, organized by county, concerning non-archaeological resources in the OHP's inventory. The OHP inventory has information only for cultural resources that have been processed through the office, including those reviewed for eligibility to the NRHP and the CHL programs through federal and state environmental compliance laws, and resources nominated under federal and state registration programs. There are a total of 84,178 resources listed in the BERD within the SCAG region (OHP 2023b).

TABLE 3.5-6 Built Environment Resources Directory

COUNTY	TOTAL
Imperial	348
Los Angeles	50,309
Orange	12,004
Riverside	8,638
San Bernardino	8,821
Ventura	4,058
Total	84,178

Source: OHP 2023b

Historic places are also recorded and can be identified in county, city, and local registers. These resources are also under various ordinances specific to the county, city, or locality. City and county registers may also be maintained by various county and city commissions. Examples of these types of organizations include the Riverside County Historical Commission, the Santa Ana Historic Resources Commission, and the Santa Monica Landmarks Commission. Local groups have also created registries within their area of interest, generally at the community level. An example of such local registers is the Ontario Heritage, a local non-profit organization that aims to protect the historic and cultural resources of Ontario, California. Furthermore, several local jurisdictions maintain historic districts. Projects within the borders of these districts are often subject to additional conditions and review by planning staff and historic commissions. A full detailing of these resources is located in Appendix D-3 and Appendix D-4.

NATIVE AMERICAN SACRED SITES

Within the SCAG region there are 16 federally recognized tribes (84 FR 1200) with lands administered as federal Indian reservations, also known as pueblos, rancherias, missions, villages, communities, etc. (Indian Affairs 2023):

- Agua Caliente Band of Cahuilla Indians
- Augustine Band of Mission Indians
- Cabazon Band of Mission Indians
- Cahuilla Band of Indians
- Chemehuevi Indian Tribe
- Colorado River Indian Tribe
- Fort Mojave
- Morongo Band of Mission Indians
- Quechan Tribe of the Fort Yuma Indian Reservation
- Pechanga Band of Luiseño Indians
- Ramona Band of Cahuilla Mission Indians
- San Manuel Band of Mission Indians
- Santa Rosa Band of Cahuilla Indians
- Soboba Band of Luiseno Indians
- Torres-Martinez Desert Cahuilla Indians
- Twenty-Nine Palms Band of Mission Indians

The NAHC is responsible for identifying, cataloging, and protecting Native American cultural resources, which can include ancient places of special religious, traditional, or social significance to Native Americans and known ancient graves and cemeteries of Native Americans on private and public lands in California. A search of the SLF files through the NAHC for the SCAG region was requested by ESA on October 13, 2022. The NAHC responded to the

request on December 8, 2022, and indicated that the results were positive. The NAHC provided a list of tribes that are traditionally and culturally affiliated with the SCAG region. On December 8, 2022, ESA requested for the NAHC to provide a count of Sacred Lands listings by county within the SCAG region. The NAHC replied on December 28, 2022, indicating that the NAHC is unable to provide counts of Sacred Lands by county (see Attachment B in **Appendix G, Assembly Bill 52 Consultation Summary Report**, of this 2024 PEIR).

HUMAN REMAINS

Human remains in the SCAG region occur within the nearly 200 formal cemeteries in the six-county area and those interred outside of formal cemeteries (see **Table 3.5-7, Formal Cemeteries in the SCAG Region Listed by County**). In the SCAG region, there are many circumstances in which human remains outside formal cemeteries could be encountered.

TABLE 3.5-7 Formal Cemeteries in the SCAG Region Listed by County

COUNTY	NUMBER OF FORMAL CEMETERIES
Imperial	9
Los Angeles	77
Orange	18
Riverside	37
San Bernardino	37
Ventura	15
Total	193

Source: ESRI (2022)

In addition to existing formal cemeteries, many cemeteries have been relocated. While the goal of such relocation projects is to repatriate human remains to a new location, there have been instances where human remains have been encountered at the original location of a relocated cemetery during subsequent ground-disturbing activities. There is also a potential to find human remains that are the result of foul play. There are also burial features associated with historic settlements and other indigenous people. Burial features can range in complexity from a simple isolated inhumation (burial or cremation) to more elaborate interments containing numerous bodies. These features may represent specially designated interment areas or remnants of larger archaeological sites. Burial associations can include shell beads and ornaments as well as ground and polished stone artifacts. In some areas, human burials are expected to be found in raised earthen mounds. Native American groups within the SCAG region varied in their burial practices with respect to interment and cremation and can be associated with a variety of items including shell beads and ornaments as well as ground and polished stone artifacts non-indigenous burials are typically associated with caskets or coffins.

3.5.2 REGULATORY FRAMEWORK

FEDERAL

ANTIQUITIES ACT

The Antiquities Act of 1906 (16 U.S. Code [USC] 431–433), was the first United States law to provide overall protection for any general kind of cultural or natural resource (NPS 2023a). The act gave the executive branch the authority to identify and protect cultural resources on federal lands in an expeditious manner. Under this act, the president of the United States is authorized to proclaim national monuments on federal lands that contain “historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest.” This act also provides for permitting the examination, excavation, and collection of archaeological resources or other objects of antiquity on federal lands to qualified institutions. The act requires that the collections of materials from investigations be placed in public museums for preservation and public benefit. The act also provides for criminal penalties, including fines and/or imprisonment, for the unlawful excavation, removal, damage, or destruction of archaeological resources on federal lands.

HISTORIC SITES ACT

The Historic Sites Act of 1935 (16 USC 461–467) established a national policy on historic preservation. The act outlined a policy to “preserve for public use historic sites, buildings and objects of national significance for the inspiration and benefit of the people of the United States.” The act also gave the Secretary of the Interior the authority to develop a program aimed at identifying and evaluating cultural resources. The act assigned the National Park Service the primary responsibility for administering federal historic preservation activities (NPS 2023d). In 2014, the act was repealed and restated as four sections in Title 54 (54 USC 320301-320306, 54 USC 102303, 54 USC 102304, and 54 USC 039101).

UNITED STATES DEPARTMENT OF TRANSPORTATION ACT (SECTION 4[F])

Section 4(f) of the United States Department of Transportation (USDOT) Act of 1966 protects publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. Transportation improvement projects that are federally funded are forbidden from the encroachment (direct or constructive use, or a take) of Section 4(f) lands unless it can be proven that no feasible and prudent alternative exists (NPS 2023e; US Department of Transportation 2023).

NATIONAL HISTORIC PRESERVATION ACT (NHPA)

The NHPA, as amended (54 U.S.C. section 470 et seq.), and its implementing regulations (36 CFR Part 800). Section 106 of the NHPA requires a federal agency with jurisdiction over a proposed federal action (referred to as an “undertaking”) to take into account the effects of the undertaking on historic properties, and to provide the Advisory Council on Historic Preservation an opportunity to comment on the undertaking.

The term historic properties refers to “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register” (36 CFR Part 800.16(l)(1)). The implementing regulations (36 CFR Part 800) describe the process for identifying and evaluating historic properties, for assessing the potential adverse effects of federal undertakings on historic properties, and seeking to develop measures to avoid, minimize, or mitigate adverse effects. The Section 106 process does not require the preservation of historic properties;

instead, it is a procedural requirement mandating that federal agencies take into account effects to historic properties from an undertaking prior to approval.

The steps of the Section 106 process are accomplished through consultation with the State Historic Preservation Officer (SHPO), federally recognized Indian tribes, local governments, and other interested parties. The goal of consultation is to identify potentially affected historic properties, assess effects to such properties, and seek ways to avoid, minimize, or mitigate any adverse effects on such properties. The agency also must provide an opportunity for public involvement (36 CFR 800.3(e)). Consultation with Indian tribes regarding issues related to Section 106 and other authorities (such as NEPA and Executive Order No. 13007) must recognize the government-to-government relationship between the Federal Government and Indian tribes, as set forth in Executive Order 13175, 65 FR 87249 (November 9, 2000), and Presidential Memorandum of November 5, 2009.

NATIONAL REGISTER OF HISTORIC PLACES (NATIONAL REGISTER)

The National Register was established by the NHPA of 1966, as “an authoritative guide to be used by federal, State, and local governments, private groups and citizens to identify the Nation’s historic resources and to indicate what properties should be considered for protection from destruction or impairment” (36 CFR 60.2) (U.S. Department of the Interior 2002). The NRHP recognizes a broad range of cultural resources that are significant at the national, state, and local levels and can include districts, buildings, structures, objects, prehistoric archaeological sites, historic-period archaeological sites, traditional cultural properties, and cultural landscapes. As noted above, a resource that is listed in or eligible for listing in the NRHP is considered “historic property” under Section 106 of the NHPA.

To be eligible for listing in the NRHP, a property must be significant in American history, architecture, archaeology, engineering, or culture. Properties of potential significance must meet one or more of the following four established criteria:

- **Criterion A:** It is associated with events that have made a significant contribution to the broad patterns of our history;
- **Criterion B:** It is associated with the lives of persons who are significant in our past;
- **Criterion C:** It embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; and/or
- **Criterion D:** It has yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one or more of the criteria of significance, a property must have integrity. Integrity is defined as “the ability of a property to convey its significance” (U.S. Department of the Interior 2002). The NRHP recognizes seven qualities that, in various combinations, define integrity. The seven factors that define integrity are location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity a property must possess several, and usually most, of these seven aspects. Thus, the retention of the specific aspects of integrity is paramount for a property to convey its significance.

Ordinarily religious properties, moved properties, birthplaces or graves, cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years are not considered eligible for the NRHP unless they meet one of the Criteria Considerations (A-G), in addition to meeting at least one of the four significance criteria and possessing integrity (U.S. Department of the Interior 2002).

NATIONAL LANDMARKS PROGRAM

36 CFR 65 identifies and designates NHLs and encourages the long-range preservation of nationally significant properties that illustrate or commemorate the history and prehistory of the United States. The NPS administers the National Historic Landmarks Program on behalf of the Secretary of the Interior. Properties designated as NHLs are listed in the NRHP upon designation. All NHLs are NRHP Properties but not all NRHP Properties are NHLs. The criteria for designation as an NHL are similar to those for inclusion in the NRHP but are more stringent and have a greater emphasis on national significance. The Landmark Program Criterion 3, which does not have a counterpart in the NRHP regulations, applies to a resource that represents some great idea or ideal of the American people. Agencies should, to the maximum extent possible, minimize harm to NHLs affected by undertakings.

ARCHEOLOGY AND HISTORIC PRESERVATION: SECRETARY OF THE INTERIOR STANDARDS AND GUIDELINES

As established by 36 CFR 67, to avoid adverse effects to historic properties the Secretary of the Interior's Standards for Rehabilitation (Secretary of the Interior's Standards) should be followed. Created under Sections 101(f), (g), and (h), and Section 110 of the amended NHPA of 1966, the Secretary of the Interior's Standards offer guidelines and approaches for preserving, rehabilitating, restoring, and reconstructing historic buildings. The Secretary of the Interior's Standards also include guidance for new construction adjacent to historic properties, in order to avoid adverse impacts to neighboring properties through a change in setting and feeling. Consequently, the Secretary of the Interior's Standards outline approaches that allow for the retention of and/or sensitive changes to the distinctive materials and features that lend a historical resource its significance. These standards and guidelines are not regulatory in nature, nor do they set or interpret policy. Instead, these serve as technical advice regarding archaeological and historic preservation procedures.

CEQA Guidelines Section 15126.4(b)(1) states that a project determined to follow the Secretary of the Interior's Standards can generally be considered to be a project that will not cause material impairment to a historical resource. Noncompliance with the Secretary' of the Interiors Standards; however, does not consistently result in material impairment to a historical resource, and some projects that do not act in accordance with the Secretary' of the Interiors Standards do not cause a significant adverse impact. Project elements must be planned on a case-by-case basis, depending upon the resource and the explanations for its significance. However, projects that comply with the Secretary of the Interior's Standards benefit from a regulatory deduction that they would have a less-than-significant adverse impact on historic resources.

ARCHAEOLOGICAL AND HISTORIC PRESERVATION ACT

The Archeological and Historic Preservation Act of 1974 (54 USC Sections 312501–312508) amended and expanded the Reservoir Salvage Act of 1960 and was enacted to complement the Historic Sites Act of 1935. The act amends the 1960 Reservoir Salvage Act by providing for the preservation of significant scientific, prehistoric, historic, and archaeological materials and data that might be lost or destroyed as a result of (1) flooding, the building of access roads, the erection of workmen's communities, the relocation of railroads and highways, and other alterations of the terrain caused by the construction of a dam by any agency of the United States, or by any private person or corporation holding a license issued by any such agency or (2) any alteration of the terrain caused as a result of any federal construction project or federally licensed activity or program. The act expands the policy set forth in the Historic Sites Act of 1935 to provide for the preservation of sites or objects of national significance by focusing attention on significant resources and data but does not require that they be shown to be of "national" significance (NPS 2023c).

The most important contribution of this act is that it made it clear that all federal agencies were authorized to fund archeological investigations, reports, and other kinds of activities to mitigate the impacts of their projects on important archeological sites. The act provides that up to one percent of congressionally authorized funds for a project may be spent from appropriated project funds to recover, preserve, and protect archaeological and historical data.

The act is also one of the statutory authorities for the curation and care of federal archeological collections and associated records (36 CFR Section 79).

ARCHAEOLOGICAL RESOURCES PROTECTION ACT

The Archaeological Resources Protection Act of 1979 (or ARPA) (16 USC Sections 470aa-470mm) was enacted to “secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals.” Under this act, archaeological resources are defined as material remains of past human life or activities that are of archaeological interest and are over 100 years old (NPS 2023b). The primary focus of the act is to protect archaeological resources on public and Indian lands, and to prevent looting and destruction of archaeological resources. The statute provides for stiff civil and criminal penalties, including fines up to \$100,000 and/or 5 years in prison for second-time offenders. The act also governs archaeological excavation and disposition of collections from sites on public and Indian lands and requires researchers to obtain a permit prior to excavating or removing any archaeological materials on federal lands. The act further requires that the nature and location of archaeological resources be kept confidential unless providing the information would further the purposes of the statute and not create a risk of harm to such resources.

AMERICAN INDIAN RELIGIOUS FREEDOM ACT

The American Indian Religious Freedom Act of 1978 (42 USC Section 1996) makes it the policy of the United States to “protect and preserve for the American Indians their inherent right to freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians.” These rights include, but are not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremony and traditional rites.

NATIVE AMERICAN GRAVES PROTECTION AND REPATRIATION ACT OF 1990

Requirements for responding to discoveries of Native American human remains and associated funerary objects on federal land are addressed under the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) (25 USC Sections 3001–3013) and its implementing regulations (43 CFR Part 10). If human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered on federal or tribal lands, the federal agency must determine and consult with the lineal descendants and culturally affiliated Indian tribes and carry out appropriate treatment and disposition of the discovered remains, including transfer of custody. Indian tribe is defined as any tribe, band, nation, or other organized group or community of Indians that is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians. NAGPRA does not require federal agencies to consult with non-federally recognized tribes. However, there are some cases in which non-federally recognized tribes may be appropriate claimants for cultural items. Federal agencies that wish to return Native American human remains and cultural items to non-federally recognized tribes may do so after review and approval by the NAGPRA Review Committee.

NAGPRA also requires permitting of the intentional removal of, or excavation of, Native American cultural items from federal or tribal lands for purposes of discovery, study, or removal; establishes criminal penalties for trafficking in human remains or cultural objects; and requires agencies and museums that receive federal funding to inventory those items in their possession and identify the descendants of and repatriate those items.

STATE

CALIFORNIA IMPLEMENTATION OF FEDERALLY AND STATE-MANDATED HISTORIC PRESERVATION PROGRAM

The California OHP is responsible for administering federally and state mandated historic preservation programs to further the identification, evaluation, registration, and protection of California's irreplaceable archaeological and historical resources under the direction of the State Historic Preservation Officer (SHPO), a gubernatorial appointee, and the State Historical Resources Commission (OHP 2023a).

OHP's responsibilities include:

- Identifying, evaluating, and registering historic properties;
- Certifying compliance with federal and state regulatory obligations;
- Encouraging the adoption of historic preservation incentives that can provide cost savings to properties; and
- Providing general advice and information to members of the public and organizations interested in preservation. OHP evaluates and comments on thousands of federally sponsored projects annually pursuant to Section 106 of the NHPA and state programs and projects pursuant to Sections 5024 and 5024.5 of the Public Resources Code (PRC). OHP also reviews and comments on local government and state projects pursuant to CEQA.

The purpose of OHP's project review program is to encourage the preservation of California's heritage resources by guaranteeing that projects and programs sponsored by federal and state agencies conform with federal and state historic preservation laws and that projects are carried out in ways that avoid any adverse effects to heritage resources. If adverse effects cannot be avoided, the OHP assists Lead Agencies in developing measures to minimize or mitigate such effects.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The CRHR is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Sections 21083.2 and 21084.1). Certain properties, including those listed in or formally determined eligible for listing in the NRHP and CHL numbered 770 and higher, are automatically included in the CRHR.

Other properties recognized under the CPHI program, identified as significant in historical resources surveys, or designated by local landmarks programs may be nominated for inclusion in the CRHR. According to PRC Section 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR

if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

- **Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2:** It is associated with the lives of persons important in our past.
- **Criterion 3:** It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
- **Criterion 4:** It has yielded, or may be likely to yield, information important in history or prehistory.

A resource eligible for the CRHR must meet one of the criteria of significance described above and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the NRHP, but it may still be eligible for listing in the CRHR.

Additionally, the CRHR consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The CRHR automatically includes the following:

- California properties listed on the NRHP and those formally determined eligible for the NRHP;
- California Registered Historical Landmarks from No. 770 onward; and
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the CRHR.

Other resources that may be nominated to the CRHR include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the NRHP, the CRHR, and/or a local jurisdiction register);
- Individual historical resources;
- Historical resources contributing to historic districts; and
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

CALIFORNIA HISTORICAL LANDMARKS

CHL are sites, buildings, features, or events that are of statewide significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. The specific standards now in use were first applied in the designation of Landmark #770. CHL #770 and above are automatically listed in the CRHR.

To be designated as a CHL, a resource must meet at least one of the criteria listed below; have the approval of the property owner(s); be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks.

Criteria for Designation. To be eligible for designation as a Landmark, a resource must meet at least one of the following criteria:

- The first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California).
- Associated with an individual or group having a profound influence on the history of California.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer or master builder.

CALIFORNIA POINTS OF HISTORICAL INTEREST

CPHIs are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. CPHIs designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the CRHR. No historical resource may be designated as both a Landmark and a Point. If a Point is subsequently granted status as a Landmark, the Point designation will be retired.

Criteria for Designation. To be eligible for designation as a Point of Historical Interest, a resource must meet at least one of the following criteria:

- The first, last, only, or most significant of its type within the local geographic region (City or County).
- Associated with an individual or group having a profound influence on the history of the local area.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer or master builder.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (ARCHAEOLOGICAL AND HISTORICAL RESOURCES)

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at Public Resources Code (PRC) Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or unique archaeological resources. Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

The CEQA Guidelines (Title 14 California Code of Regulations [CCR] Section 15064.5) recognize that historical resources include (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the CEQA Guidelines apply. If an archaeological site does not meet the criteria for a historical resource contained in the CEQA Guidelines, then the site may be treated in accordance with the provisions of Section 21083, which is as a unique archaeological resource. As defined in Section 21083.2 of CEQA a “unique” archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required. The CEQA Guidelines note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064.5(c)(4)).

A significant effect under CEQA would occur if a project results in a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5(a). Substantial adverse change is defined as “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired” (CEQA Guidelines Section 15064.5(b)(1)). According to CEQA Guidelines Section 15064.5(b)(2), the significance of a historical resource is materially impaired when a project demolishes or materially alters in an adverse manner those physical characteristics that:

- A. Convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR; or
- B. Account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- C. Convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a Lead Agency for purposes of CEQA.

In general, a project that complies with the Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (Standards) (Grimmer 2017) is considered to have mitigated its impacts to historical resources to a less-than-significant level (CEQA Guidelines Section 15064.5(b)(3)).

CALIFORNIA COASTAL ACT

The California Coastal Act (CCA; PRC Sections 30000 et seq.) was enacted in 1976, four years after the Coastal Commission was created by Proposition 20. It requires the implementation of reasonable mitigations measures to protect archaeological resources as identified by the SHPO when development would adversely impact such resources.

CALIFORNIA HEALTH AND SAFETY CODE SECTION 7050.5

See detailed discussion of this regulation in Section 3.18, *Tribal Cultural Resources*.

CALIFORNIA PUBLIC RESOURCES CODE SECTION 5097.98

See detailed discussion of this regulation in Section 3.18, *Tribal Cultural Resources*.

CALIFORNIA PUBLIC RESOURCES CODE SECTIONS 5024 AND 5024.5

The California State Legislature enacted PRC Sections 5024 and 5024.5 as part of a larger effort to establish a state program to preserve historical resources. These code sections require state agencies to take a number of actions to ensure preservation of state-owned historical resources under their jurisdictions. These actions include evaluating resources for eligibility for listing in the National Register and designation as California Historical Landmarks; maintaining an inventory of eligible and listed resources; and managing these historical resources so that that they will retain their historic characteristics.

PRC Section 5024(f) states that a state agency shall submit to the SHPO for comment documentation for any project having the potential to affect historical resources listed in or potentially eligible for listing in the National Register or registered as or eligible for registration as a California Historical Landmark. PRC Section 5024.5 requires state agencies to notify and consult with the SHPO regarding adverse effects to historical resources and measures to eliminate or mitigate the adverse effect.

CALIFORNIA PUBLIC RESOURCES CODE SECTIONS 5025 AND 5028

California PRC Section 5025 declared the need for state repositories dedicated to the preservation and restoration of artifacts related to the history of aviation within California and the United States. This included the designation of a state aviation museum known as the California City Museum and Restoration Facility.

PRC Section 5028 specifies that no structure that is listed on the NRHP, the CRHR, or on any local public register of historic places, and that has been damaged due to a natural disaster, including, but not limited to, an earthquake, fire, or flood, may be demolished, destroyed, or significantly altered, except for restoration to preserve or enhance its historical values, unless the structure presents an imminent threat to the public of bodily harm or of damage to adjacent property, or unless the OHP determines, that the structure may be demolished, destroyed, or significantly altered.

CALIFORNIA PUBLIC RESOURCES CODES 5097.5, 5097.9, 5097.98, AND 5097.99

See detailed discussion of these regulations in Section 3.18, *Tribal Cultural Resources*.

CALIFORNIA PENAL CODE SECTION 622, DESTRUCTION OF HISTORICAL PROPERTIES

See detailed discussion of these regulations in Section 3.18, *Tribal Cultural Resources*.

SENATE BILL 18

Senate Bill 18 (SB 18) (Statutes of 2004, Chapter 905), which went into effect January 1, 2005, requires local governments (city and county) to consult with Native American tribes before making certain planning decisions and to provide notice to tribes at certain key points in the planning process. The intent is to “provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places” (OPR 2005).

The purpose of involving tribes at these early planning stages is to allow consideration of cultural places in the context of broad local land use policy, before individual site-specific, project-level, land use designations are made by a local government. The consultation requirements of SB 18 apply to general plan or specific plan processes proposed on or after March 1, 2005.

According to the Tribal Consultation Guidelines: Supplement to General Plan Guidelines (OPR 2005), the following are the contact and notification responsibilities of local governments:

- Prior to the adoption or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the NAHC) of the opportunity to conduct consultations for the purpose of preserving, or mitigating impacts to, cultural places located on land within the local government’s jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe (Government Code Section 65352.3).
- Prior to the adoption or substantial amendment of a general plan or specific plan, a local government must refer the proposed action to those tribes that are on the NAHC contact list and have traditional lands located within the city or county’s jurisdiction. The referral must allow a 45-day comment period (Government Code Section 65352). Notice must be sent regardless of whether prior consultation has taken place. Such notice does not initiate a new consultation process.
- Local government must send a notice of a public hearing, at least 10 days prior to the hearing, to tribes who have filed a written request for such notice (Government Code Section 65092).

ASSEMBLY BILL 52

Assembly Bill (AB) 52 was approved by California State Governor Edmund Gerry “Jerry” Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 applies specifically to projects for which a Notice of Preparation (NOP) or a Notice of Intent to Adopt a Negative Declaration or Mitigated Negative Declaration (MND) will be filed on or after July 1, 2015. The primary intent of AB 52 was to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. PRC Section 21074(a)(1) and (2) defines tribal cultural resources as “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe” that are either included or determined to be eligible for inclusion in the CRHR or included in a local register of historical resources, or a resource that is determined to be a tribal cultural resource by a lead agency, in its discretion and supported by substantial evidence. On July 30, 2016, the California

Natural Resources Agency adopted the final text for tribal cultural resources update to CEQA Guidelines Appendix G, which was approved by the Office of Administrative Law on September 27, 2016.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the project's impacts on the tribal cultural resources; project alternatives or appropriate measures for preservation; and mitigation measures (California Legislation Information 2023f). Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an Environmental Impact Report or adopt an MND (PRC Section 21082.3(d)(2) and (3)).

PRC Section 21082.3(c)(1) states that any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

EXECUTIVE ORDER B-10-11

Executive Order B-10-11 creates the state's policy regarding Native American groups, including the acknowledgment of their sovereign rights, and the state's desire that all agencies be subject to executive control, and to encourage the communication and consultation with California Native tribes. Additionally, this executive order, created the position of Governor's Tribal Advisor as part of the Office of the Governor of California to serve as the direct link between the Governor's Office and the numerous tribal governments regarding matters of policy, including legislation and regulation.

LOCAL

COUNTY GENERAL PLANS

In addition to federal and state regulations, cities and counties in the SCAG region may also provide regulatory protection and advisement regarding cultural resources (**Table 3.5-8, County Policies and Ordinances Relevant to the SCAG Region**). California law requires that a general plan include seven elements (land use, open space, conservation, housing, circulation, noise, and safety). Many jurisdictions incorporate policies related to cultural and historical resources into the conservation element. Other jurisdictions choose to prepare a separate (optional) element dealing with cultural and/or historic preservation issues. Many jurisdictions also prepare ordinances addressing cultural resources and historic preservation.

TABLE 3.5-8 County Policies and Ordinances Relevant to the SCAG Region

COUNTY	COUNTY POLICIES AND ORDINANCES
Imperial	Conservation and Open Space Element of General Plan Policy Numbers: Only one policy, Section IV.B.2 Policies Specific to Archaeological Resources: Yes, brief Policies Specific to Paleontological Resources: No Policies Specific to Historic Resources: No
Los Angeles	Chapter 9: Conservation and Natural Resources Element of General Plan Policy Numbers: C/NR 14.1–C/NR 14.6 Policies Specific to Archaeological Resources: Yes, very brief Policies Specific to Paleontological Resources: Yes, very brief Policies Specific to Historic Resources: Yes, very brief
Orange	Chapter VI: Resources Element of General Plan Policy Numbers: Goals 1, 2, and 3, each with multiple policy numbers Policies Specific to Archaeological Resources: Yes, extensive Policies Specific to Paleontological Resources: Yes, extensive Policies Specific to Historic Resources: Yes, extensive
Riverside	Chapter 5: Multipurpose Open Space Element of General Plan Policy Numbers: 19.1–19.9 Policies Specific to Archaeological Resources: Yes, brief Policies Specific to Paleontological Resources: Yes, brief Policies Specific to Historic Resources: Yes
San Bernardino	Conservation Element (Subchapter C2) of General Plan Policy Numbers: CO 3.1–CO 3.5 Policies Specific to Archaeological Resources: No – together with historic resources, extensive Policies Specific to Paleontological Resources: Yes, extensive Policies Specific to Historic Resources: No – together with archaeological resources, extensive
Ventura	Chapter 1: Resources (Subchapter 1.8) of General Plan Policy Numbers: 1–6 Policies Specific to Archaeological Resources: Yes, Policies 1–3 Policies Specific to Paleontological Resources: Yes, Policies 4 and 5 Policies Specific to Historic Resources: Yes, Policy 6

CITY GENERAL PLANS AND ORDINANCES

In accordance with California Government Code Sections 65560(g) and (i), like the six counties in the SCAG region, all cities are required to have a conservation element and an open space element, as mandatory elements of their general plans. Generally, Conservation and Open Space Elements provide goals and policies for the protection and preservation of cultural resources, including archaeological, and historic resources. Cities may also designate a neighborhood as a local historic district, referred to as a Historic Preservation Overlay Zone (HPOZ) which aims to identify and protect the distinctive architectural and cultural resources within a city. HPOZs provide an additional layer of planning control during the project review process. Many city general plans have provisions for historic districts and protection of locally important cultural resources that may or may not meet the criteria for eligibility for listing in the NRHP or CRHR. For example, the City of Los Angeles's local historic districts program aims to identify and protect the distinctive architectural and cultural resources of Los Angeles's historic neighborhoods. Designating a neighborhood as a local historic district/HPOZ means that any new projects in that neighborhood must complement its historic character. The City currently has 35 officially designated HPOZs in its jurisdiction (City of Los Angeles 2023).

3.5.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to cultural resources if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5; and/or
- Disturb any human remains, including those interred outside of dedicated cemeteries.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis for cultural resources considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

Cultural Resources have been evaluated in accordance with Appendix G of the CEQA Guidelines. Cultural resources within the SCAG region were evaluated at a programmatic level of detail, in relation to the general plans of the six counties and 191 cities within the SCAG region.

The methodology for determining the significance of the Plan's impacts to cultural impacts compares the existing conditions (2022) to the future (2050) conditions. The known historical, and archaeological resources located

within the SCAG region were evaluated using the criteria set forth by the OHP, the California Register of Historic Resources, and the CEQA Guidelines. The research analysis for archeological and historic was limited to state and federally recognized resources and landmarks, consistent with the definitions provided in Section 15064.5 of the CEQA Guidelines.

All of the counties within the SCAG region are rich with fossil-bearing sedimentary formations and have been documented to contain historic and archaeological sites. All areas within the region have the potential for yielding yet undiscovered paleontological and archaeological resources. The development of new transportation facilities may affect archaeological resources, primarily through the disturbance of buried resources. Frequently, these resources are previously unidentified.

Approximately 112,860 cultural resources (including both archeological resources and historic-architectural/built environment resources) have been identified in the SCAG region (see Table 3.5-1). Each of these sites is documented at an Archaeological Information Center, which holds location information on archaeological sites for each region in California. These known resources are limited to areas that are subject to various levels of research or investigation. Areas that have been subject to pedestrian surveys or sub-surface explorations represent only a fraction of the total area with the potential to yield such resources. Therefore, the analysis focuses on the potential for projects to necessitate ground-disturbing activities in areas where significant archeological resources have been previously recorded or require work in sediments that have not been previously investigated.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT CUL-1 Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5.

Significant and Unavoidable Impacts – Mitigation Required

The Plan has the potential to affect historical resources in the SCAG region, including the 1,383 sites listed in the NRHP (see Table 3.5-2 above and Appendix D-1); 29 sites listed in the NHL (see Table 3.5-3 above and Appendix D-2); 226 sites listed in the CHL (see Table 3.5-4 above and Appendix D-3); 285 listed in the CPHI (see Table 3.5-5 above and Appendix D-4); and 84,178 sites listed in the BERD (OHP 2023b). Note that there are many more historical resources than those officially listed. In general, any building over 50 years old has the potential to have some connection to California history; therefore, as time passes more buildings become potential resources. In addition, archeological resources have the potential to be encountered in soils especially those previously undisturbed. For the purposes of this PEIR, a historic resource refers to an architectural/built environment resource. Archeological resources are separately addressed in Impact CUL-2. In addition to historical sites that have been recognized in federal and state lists, there is the potential for the Plan to affect unrecognized historical resources

(structures that exist whose historic value has not previously been assessed or documented). In more remote areas, or areas not previously subject to any type of survey, structures of historic importance may not be currently listed on state or federal registers. In urban areas some jurisdictions have not undertaken a detailed inventory of potential resources. In addition, over time, additional resources become eligible to be identified as historic. Therefore, the Plan could affect unrecognized historical resources throughout the region.

In instances where buildings 50 years or older are located on or adjacent to a project site, such structures should be evaluated as potential historical resources, to determine if they meet the criteria that would make them eligible for the NRHP, CRHR and/or a local list. It is recommended that, depending on circumstances, for new construction, the evaluation of the potential for indirect and direct impacts to historical resources should extend 1,000 feet from new construction. However, the geography and circumstance of each site will affect the appropriate means and protocols for evaluation.

Projects that would have the potential to cause an impact to historical resources include transportation projects that entail the development of new lanes, tracks, arterials, or interchanges that may require the acquisition of new rights-of-way, as well as development projects influenced by the policies and strategies in the Plan. Such projects may result in direct demolition of historical resources or more indirect impacts such as changing the aesthetic context of the resource and/or increasing levels of corrosive air contaminants that affect historical features, and/or project construction activity that can result in vibrations that damage to fragile buildings.

Transportation projects proposed in existing "rights of way," such as high-occupancy vehicle (HOV) lanes, high-occupancy toll (HOT) lanes, bus rapid transit (BRT) and goods movement capacity enhancement projects, mixed flow lanes, and "right-of-way" maintenance (such as pot-hole repair) would have a limited potential to result in an impact to historic resources because they result in changes to existing facilities within an existing impact footprint. In circumstances where widening would occur, there would be greater potential for impacts, for example, by changing the view of a resource.

While there are substantial protections for historic resources many of the regulatory requirements only delay demolition or the substantial change that is proposed and historic resources remain vulnerable as the region develops and redevelops.

The Plan encourages new growth in PDAs and away from GRRAs which could result in a greater number of historic buildings being impacted. Transportation projects include an expanded transit network, including multiple Metro Rail extensions and the first urban rail services in Orange County (OC Streetcar) and San Bernardino County (Redlands Rail Phase II). New bus rapid transit and rapid bus routes will be implemented across Los Angeles, Orange, Riverside and San Bernardino Counties. Many urbanized areas include older urban or suburban town centers where structures of architectural and/or historical significance are located. Changes in visual character of a neighborhood both through increases in density, changes in architectural styles and through the addition of new transportation infrastructure (such as elevated transit platforms) can alter the context and potentially the significance of an historical resource (including both individual resources and historic districts). Further, as new housing and employment development is emphasized in PDAs and away from GRRAs, there may be pressure to redevelop existing historical-architectural/built environment resources (or eligible resources) that may be of lower density than new development. Redevelopment of historic properties could result in significant impacts to historical resources.

In summary, implementation of the Plan could impact the physical and aesthetic integrity of historic buildings and communities. This impact is considered significant impact and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-GEN-1.

SMM-CUL-1 SCAG shall encourage local jurisdictions to identify opportunities for early consultation with resource agencies such as the National Park Service, Office of Historic Preservation, and Native American Heritage Commission, as well as Native American tribes, for identification and avoidance of archaeological sites, historical resources, cemeteries, and tribal cultural resources, wherever practicable and feasible and reduce or mitigate for conflicts in compatible land use to the maximum extent practicable.

PROJECT-LEVEL MITIGATION MEASURES

PMM-CUL-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to historical resources. Such measures may include the following or other comparable measures identified by the lead agency:

- a. Pursuant to CEQA Guidelines Section 15064.5, conduct a record search during the project planning phase at the appropriate Information Center to determine whether the Plan area has been previously surveyed and whether historical resources were identified.
- b. During the project planning phase, retain a qualified architectural historian, defined as an individual who meets the Secretary of the Interior's Professional Qualification Standards (PQS) in Architectural History, to conduct historic architectural surveys if a built environment resource greater than 45 years in age may be affected by the project or if recommended by the Information Center.
- c. Comply with Section 106 of the National Historic Preservation Act (NHPA) including, but not limited to, projects for which federal funding or approval is required for the individual project. This law requires federal agencies to evaluate the impact of their actions on resources included in or eligible for listing in the National Register. Federal agencies must coordinate with the State Historic Preservation Officer in evaluating impacts and developing mitigation. These mitigation measures may include, but are not limited to the following:
 - Employ design measures to avoid historical resources and undertake adaptive reuse where appropriate and feasible. If resources are to be preserved, as feasible, carry out the maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction in a manner consistent with the Secretary of the Interior's Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. If resources would be impacted, impacts should be minimized to the extent feasible.
 - Where feasible, noise buffers/walls and/or visual buffers/landscaping should be constructed to preserve the contextual setting of significant built resources.
- d. If a project requires the relocation, rehabilitation, or alteration of an eligible historical resource, the Secretary of the Interior's Standards for the Treatment of Historic Properties should be used to the maximum extent feasible to ensure the historical significance of the resource is not impaired. The application of the standards should be overseen by an

architectural historian or historic architect meeting the Secretary of the Interior's PQS. Prior to any construction activities that may affect the historical resource, a report, meeting industry standards, should identify and specify the treatment of character-defining features and construction activities and be provided to the lead agency for review and approval.

- e. If a project would result in the demolition or significant alteration of a historical resource eligible for or listed in the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), or local register, recordation should take the form of Historic American Buildings Survey (HABS), Historic American Engineering Record (HAER), or Historic American Landscape Survey (HALS) documentation, and should be performed by an architectural historian or historian who meets the Secretary of the Interior's PQS. Recordation should meet the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering, which defines the products acceptable for inclusion in the HABS/HAER/HALS collection at the Library of Congress. The specific scope and details of documentation should be developed at the project level in coordination with the lead agency.
- f. During the project planning phase, obtain a qualified archaeologist, defined as one who meets the Secretary of the Interior's PQS for archaeology, to conduct a record search at the appropriate Information Center of the California Historical Resources Information System (CHRIS) to determine whether the Plan area has been previously surveyed and whether resources were identified.
- g. Contact the NAHC to request a Sacred Lands File search and a list of relevant Native American contacts who may have additional information.
- h. During the project planning phase, obtain a qualified archaeologist or architectural historian (depending on applicability) to conduct archaeological and/or historic architectural surveys as recommended by the qualified professional, the lead agency, or the Information Center. In the event the records indicate that no previous survey has been conducted, the qualified professional or Information Center will make a recommendation on whether a survey is warranted based on the sensitivity of the Plan area for archaeological resources.
- i. If potentially significant archaeological resources are identified through survey, and impacts to these resources cannot be avoided, a Phase II Testing and Evaluation investigation should be performed by a qualified archaeologist prior to any construction-related ground-disturbing activities to determine significance. If resources determined significant or unique through Phase II testing, and avoidance is not feasible, appropriate resource-specific mitigation measures should be established by the lead agency and undertaken by qualified personnel. These might include a Phase III data recovery program implemented by a qualified archaeologist and performed in accordance with the OHP's Archaeological Resource Management Reports (ARMR): Recommended Contents and Format and Guidelines for Archaeological Research Designs. Additional options can include 1) interpretative signage, or 2) educational outreach that helps inform the public of the past activities that occurred in this area. Archaeological materials collected from a significant resource should be curated with a recognized scientific or educational repository.
- j. If a record search or archaeological assessment indicates that the project is located in an area sensitive for archaeological resources, as determined by the lead agency in consultation with a qualified archaeologist, retain an archaeological monitor to observe ground disturbing

operations, including but not limited to grading, excavation, trenching, or removal of existing features of the subject property. The archaeological monitor should be supervised by an archaeologist meeting the Secretary of the Interior's PQS

- k. Conduct construction activities and excavation to avoid cultural resources (if identified). If avoidance is not feasible, further work may be needed to determine the importance of a resource. Retain a qualified archaeologist, and/or as appropriate, a qualified architectural historian who should make recommendations regarding the work necessary to assess significance. If the cultural resource is determined to be significant under state or federal guidelines, impacts to the cultural resource will need to be mitigated.
- l. Stop construction activities and excavation in the area where cultural resources are found until a qualified archaeologist can determine whether these resources are significant. If the archaeologist determines that the discovery is significant, it should be curated with a recognized scientific or educational repository.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to substantial adverse changes in the significance of historical resources, unknown site conditions, the location of existing historical resources, and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT CUL-2 **Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.**

Significant and Unavoidable Impact – Mitigation Required

The Plan could cause a substantial adverse change in the significance of archaeological resources in the SCAG region, pursuant to CEQA Guidelines Section 15064.5, constituting a significant impact.

The OHP defines an archaeological "site" as consisting of three or more related resources discovered in one locality. In the event of archaeological discovery, the resources are collected, documented, and curated at an educational institution, such as a school or a museum. Implementation of the Plan has the potential to impact archeological resources in the SCAG region primarily through ground disturbance in previously undisturbed soils. In addition to the archeological sites that have been recognized and listed in federal and state lists, there are many unrecognized archeological resources. Unrecognized archeological resources are those that have not previously been assessed or documented.

Potential impacts to archaeological resources would be more likely to occur from ground-disturbing activities associated the Plan rather than during ongoing operations, by changing the context of the resource or directly

through disturbing previously undisturbed resources. Changes to existing transportation facilities such as improvements and modifications to existing rights-of-way, such as HOV lanes, HOT lanes, bus-ways and capacity enhancement facilities, mixed flow lanes, other transportation facilities and right-of-way maintenance, would have less potential to impact archaeological resources because these project locations have previously been disturbed. However, it is possible for archaeological resources to be present within or immediately adjacent to disturbed sediments. Activities to increase roadway capacity such as the construction of additional lanes would potentially impact archaeological resources, if it would entail grading, trenching, excavation, and/or soil removal in an area not previously disturbed.

The Plan encourages growth in PDAs that are generally urbanized and mostly fully developed areas and therefore new ground disturbance has less potential to encounter resources. Although the majority of jobs and housing units would be in PDAs under the Plan, new housing is still expected to occur outside of PDAs which could impact previously undisturbed soils. Within PDAs, new development may go deeper than prior development and/or previously disturbed resources can be encountered in fill. In most cases the potential for discovering buried archeological resources in previously disturbed areas is low, as any resources that may have existed have been either removed or destroyed during previous excavations. Nonetheless, it is possible that some development in PDAs could occur on previously undisturbed sites. It is also possible that disturbance of archaeological resources could occur where such resources are buried and may not be visible at the ground surface, and in some instances are located below recent development. In such instances, there is the potential to disturb previously undiscovered archeological resources.

As identified in the Regulatory Framework above, regulations and policies would reduce impacts to archeological resources but given the regional scale of the analysis in this 2024 PEIR, it is not possible to determine if all impacts would be fully mitigated by existing regulations and policies.

In summary, given the complexity and scale of the region, the Plan has the potential to substantially affect archaeological resources and therefore potentially change their significance. As such, this impact is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See **SMM-GEN-1** and **SMM-CUL-1**.

PROJECT-LEVEL MITIGATION MEASURES

See **PMM-CUL-1**.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to substantial adverse changes in the significance

of archaeological resources, unknown site conditions, the location of existing archaeological resources, and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT CUL-3 **Disturb human remains, including those interred outside of dedicated cemeteries.**

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan would not be expected to disturb human remains within areas being operated as existing formal cemeteries. However, the Plan may result in soil disturbance associated with transportation projects and land use development that may disturb human remains interred outside of formal cemeteries or those interred in Native American sacred sites.

Humans have occupied the six-county SCAG region for at least 10,000 years. Although it is not always possible to predict where human remains may occur outside of formal burials, it is possible that excavation and construction activities, regardless of depth, may yield human remains that may not be interred in marked, formal burials. Earthmoving activities for transportation projects would generally be within 150 feet on either side of any project and could result in a significant impact relative to the discovery of human remains.

While the Plan focuses development in PDAs and away from GRRAs, there remains the potential to encounter human remains in previously undisturbed soils. The transportation projects and anticipated growth under the Plan would result in the consumption of greenfield land. Although the majority of jobs and housing units would be in PDAs under the Plan, new housing is expected in a standard suburban pattern outside of PDAs and could impact previously undisturbed soils. As noted above in Impact CUL-2, even within PDAs there remains the potential to impact previously undisturbed soils. Under CEQA, human remains are protected along with other archaeological materials as being "any evidence of human activity." Human remains are also protected under NAGPRA, which was enacted to provide protection to Native American graves, as well as culturally affiliated items, associated funerary objects, unassociated funerary objects, sacred objects, and objects of cultural patrimony.

Implementation of the Plan could result in excavation in previously undisturbed soils and/or areas with previous disturbance to a lesser depth. In addition, some fill soils can contain archeological resources and even human remains. Therefore, excavation and soil removal especially in previously undisturbed soils, has the potential to encounter human remains. While existing law strictly governs the procedures to address how to handle such remains, due to the volume of transportation projects and anticipated growth at a regional level under the Plan, implementation of the Plan has the potential to disturb previously undiscovered human remains. As such, this impact is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-GEN-1 and SMM-CUL-1.

PROJECT-LEVEL MITIGATION MEASURES

PMM-CUL-2 In accordance with provisions of sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce

substantial adverse effects related to human remains. Such measures may include the following or other comparable measures identified by the lead agency:

- a. In the event of discovery or recognition of any human remains during construction or excavation activities associated with the project, in any location other than a dedicated cemetery, cease further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the coroner of the county in which the remains are discovered has been informed and has determined that no investigation of the cause of death is required.
- b. If any discovered remains are of Native American origin:
 - Contact the County Coroner to contact the NAHC to designate a Native American Most Likely Descendant (MLD). The MLD should make a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods. This may include obtaining a qualified archaeologist or team of archaeologists to properly excavate the human remains.
 - If the NAHC is unable to identify a MLD, or the MLD fails to make a recommendation within 48 hours after being notified by the commission, or the landowner or his representative rejects the recommendation of the MLD and the mediation by the NAHC fails to provide measures acceptable to the landowner, obtain a culturally affiliated Native American monitor, and an archaeologist, if recommended by the Native American monitor, and rebury the Native American human remains and any associated grave goods, with appropriate dignity, on the property and in a location that is not subject to further subsurface disturbance.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to undiscovered human remains, unknown site conditions, the location of undiscovered human remains, and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to cultural resources, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

3.5.4 SOURCES

- Byrd, B.F., and L.M. Raab. 2007. Prehistory of the Southern Bight: Models for a New Millennium. In *California Prehistory: Colonization, Culture, and Complexity*. Edited by Terry L. Jones and Kathryn A. Klar, pp. 215–227.
- California Government Code. Title 7, Division 1, Chapter 3, Article 10.5: Open-Space Lands [65560–65570], Section 65560.
- California Missions Foundation. 2023. The California Missions. Learn About the Missions. <https://californiamissionsfoundation.org/the-california-missions/>. Accessed on January 13, 2023.
- California Penal Code. Part 1, Title 14. Malicious Mischief [594–625c], Section 622.
- California Public Resources Code. Division 5, Chapter 1, Article 2: Historical Resources [5020–5029.6], Section 5024.1.
- California Public Resources Code. Division 5, Chapter 1.7: Archaeological, Paleontological, and Historic Sites [5097–5097.7], Section 5097.5.
- California Public Resources Code. Division 5, Chapter 1.75: Native American Historical, Cultural, and Sacred Sites [5097.9–5097.991], Section 5097.98.
- California Public Resources Code. Division 13, Chapter 2.6: General [21080–21098], Section 21083.2.
- California Public Resources Code. Division 20: California Coastal Act.
- City of Los Angeles Department of City Planning. 2023. *Local Historic Districts (HPOZs)*. <https://planning.lacity.org/preservation-design/local-historic-districts>. Accessed August 25, 2023.
- Dinkelspiel, F. 2008. *Towers of Gold*. St. Martin's Press, New York.
- Eastern Information Center (EIC). Cultural Resources Records Search request sent by ESA to EIC for the SCAG Connect SoCal 2024. Results received on October 18, 2022.
- Erlandson, J.M. 1994. *Early Hunter-Gatherers of the California Coast*. Plenum Press, New York.
- Governor's Office of Planning and Research (OPR). 2005. State of California Tribal Consultation Guidelines – Supplement to General Plan Guidelines. November 14, 2005.
- Grimmer, E.A. 2017. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*. Washington, D.C.: U.S. Department of the Interior National Park Services: Technical Preservation Services.
- Gumprecht, B. 2001. *Los Angeles River: Its Life, and Possible Rebirth*. The Johns Hopkins University Press, Baltimore. 1999, Reprinted 2001.
- Health and Safety Code. Division 7, Part 1, Chapter 2: General Provisions [7050.5–7055], Section 7050.5.
- Indian Affairs. 2023. U.S. Department of the Interior. Search Federally Recognized Tribes by State. https://www.bia.gov/service/tribal-leaders-directory/federally-recognized-tribes?field_us_state_s_value=CA&page=5. Accessed January 19, 2023.
- Johnson, J.R., and D. D. Earle. 1990. Tataviam Geography and Ethnohistory. In *Journal of California and Great Basin Anthropology*, Vol. 12, No. 2, pp. 191–214.
- King, C. 1978. Protohistoric and Historic Archaeology. In *Handbook of North American Indians, California*. Vol. 8, Heizer R. (ed.). Smithsonian Institution, Washington, D.C., pp. 58–68.

- Lightfoot, K.G., and William S. Simmons. 1998. Culture Contact in Protohistoric California: Social Contexts of Native and European Encounters. In *Journal of California and Great Basin Anthropology*, Vol 20, No. 2, pp. 138–170.
- McWilliams, C. 1946. *Southern California: An Island on the Land*. Gibbs Smith, Layton, Utah.
- Miller, L. 2013. The Secret Treaties with California Indians. <https://www.archives.gov/research/native-americans/treaties/viewing-treaties>. Accessed January 19, 2023.
- Milliken, R., L.H. Shoup, and B.R. Ortiz. 2009. *Ohlone/Costanoan Indians of the San Francisco Peninsula and their Neighbors, Yesterday and Today*. Prepared by Archaeological and Historical Consultants, Oakland, California. Prepared for National Park Service Golden Gate National Recreation Area, San Francisco, California. June 2009.
- National Park Service (NPS). 2022. National Register of Historic Places. *National Register Database and Research*. <https://www.nps.gov/subjects/nationalregister/database-research.htm>. Accessed December 2022,
- NPS. 2023a. *American Antiquities Act of 1906*. 16 USC 431–433. <https://www.nps.gov/subjects/archeology/antiquities-act.htm>. Accessed July 21, 2023.
- NPS. 2023b. *Archaeological Resources Protection Act*. <https://www.nps.gov/subjects/archeology/archaeological-resources-protection-act.htm>. Accessed July 21, 2023.
- NPS. 2023c. *Archeological and Historic Preservation Act of 1974*. (as amended). <https://home.nps.gov/subjects/archeology/archeological-and-historic-preservation-act.htm>. Accessed July 21, 2023.
- NPS. 2023d. *Historic Sites Act of 1935*. 16 USC Section 461–467. <https://www.nps.gov/subjects/archeology/historic-sites-act.htm>. Accessed July 21, 2023.
- NPS. 2023e. National Historic Landmarks. List of NHLs by State. <https://www.nps.gov/subjects/nationalhistoriclandmarks/list-of-nhls-by-state.htm>. Accessed December 2022.
- NPS. 2023f. *National Historic Preservation Act of 1966*. Public Law 102-575. <https://www.nps.gov/subjects/archeology/national-historic-preservation-act.htm>. Accessed July 21, 2023.
- Office of Historic Preservation (OHP). 2023a. About the Office of Historic Preservation. http://ohp.parks.ca.gov/?page_id=27961. Accessed July 21, 2023.
- OHP. 2023b. *Built Environment Resource Directory (BERD)*. https://ohp.parks.ca.gov/?page_id=30338. Accessed September 23, 2022.
- OHP. 2023c. California Historical Landmarks by County. https://ohp.parks.ca.gov/?page_id=21387. Accessed July 21, 2023.
- Pitt, L. 1994. *The Decline of the Californios: A Social History of the Spanish-Speaking Californians, 1846–1890*. University of California Press, Berkeley.
- South Coastal Information Center (SCIC). 2022. Cultural Resources Records Search request sent by ESA to SCIC for the SCAG Connect SoCal 2024. Results received on October 17, 2022.
- South Central Coastal Information Center (SCCIC). 2022. Cultural Resources Records Search request sent by ESA to SCCIC for the SCAG Connect SoCal 2024. Results received on December 2, 2022.
- Starr, K. 2007. *California: A History*. Modern Library, New York.
- U.S. Department of the Interior. 2002. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. National Park Service, Washington, D.C.

- U.S. Department of Transportation. 2023. Section 4(f) of the Department of Transportation Act. https://www.environment.fhwa.dot.gov/env_topics/4f_tutorial/overview.aspx. Accessed July 21, 2023.
- Wallace, W.J. 1955. A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11(3):214–230.
- Warren, C.N. 1968. Cultural Traditions and Ecological Adaptation on the Southern California Coast. *Archaic Prehistory in the Western United States* 1(3):1–14. Edited by Cynthia Irwin-Williams. Eastern New Mexico University Contributions in Anthropology.
- Worden, L. Undated. A Timeline of Historical Events. Santa Clarita Valley History in Pictures. Electronic document <http://www.scvhistory.com/scvhistory/timeline.htm>. Accessed September 4, 2012.

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3.6 ENERGY

This section of the 2024 PEIR describes the existing conditions related to energy in the SCAG region, sets forth the regulatory framework that addresses energy, and analyzes the significance of the potential energy impacts that could occur from development of Connect SoCal 2024. In addition, this PEIR provides regional-scale mitigation measures, as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible. Issues regarding greenhouse gas (GHG) emissions associated with energy production and consumption are addressed in Section 3.8, *Greenhouse Gas Emissions*, of this 2024 PEIR.

3.6.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for energy follow:

- *Natural gas*: Natural gas is a naturally occurring hydrocarbon mixture consisting primarily of methane that was formed when layers of decomposing carbon material is exposed to intense heat under the earth's surface over millions of years.
- *Petroleum*: Petroleum is a naturally occurring liquid mixture of hydrocarbons found in geological formations beneath earth's surface and is refined into various types of fuels including gasoline, kerosene, and diesel oil.
- *Renewable energy*: Renewable energy is a form of energy that is collected from renewable resources that are naturally replenished on a human timescale such as sunlight, wind, rain, tides, waves, and geothermal heat. Renewable energy often provides energy for electricity generation, air and water heating/cooling, transportation, and off-grid energy services.
- *Acre-feet*: Unit of volume used to reference large-scale water resources, such as reservoirs, aqueducts, canals, and river flows. One acre-foot is equivalent to approximately 326,000 gallons or enough water to cover an acre of land by 1 foot.
- *British thermal units (Btu)*: The amount of heat required to raise the temperature of one pound of water by one-degree Fahrenheit.
- *Clean Air Vehicles*: Vehicles that produce zero or near-zero emissions and utilize renewable or alternative fuels including but not limited to electricity, hydrogen, biofuels, or renewable diesel.
- *Therms*: Unit of heat equivalent to 100,000 Btu.
- *Watt*: Unit of power equivalent to one joule per second, corresponding to the power in an electric circuit.
- *Watt-hour*: Unit of energy equivalent to one watt of power expended for one hour of time.

ENERGY SUPPLY

ELECTRICITY

Electricity produced within California in 2019 was from natural gas (43 percent), renewable resources (32 percent), large hydroelectric (17 percent), nuclear (8 percent), and coal and oil (<1 percent). California uses energy

generated in-state and imports electricity from the Southwest or Pacific Northwest of the United States. The State's electric generation mix, based on in-state generation and out-of-state purchases in 2019 was comprised of natural gas (34 percent), renewable resources (32 percent), large hydroelectric (15 percent), coal and oil (3 percent), nuclear (9 percent), and additional unspecific sources of power (7 percent) (California Energy Commission [CEC] 2019a). In 2019, the total electrical system power generated was 277,704 GWh, which is down about 2.7 percent from 2018's total system electric generation of 285,488 GWh (CEC 2019a). This results in a per capita electricity use of approximately 7.02 MWh/person/year (U.S. Census Bureau 2020).

NATURAL GAS

In 2019, the total natural gas usage across California was 12,779 million therms. The six counties making up the SCAG region used approximately 4,901 million therms in 2019, approximately 38 percent of the state's total usage for the year (CEC 2019b).

Natural gas production across the country increased with technological advances in horizontal drilling and hydraulic fracking. However, in Southern California, natural gas production has steadily declined. In 2016, Governor Jerry Brown declared a state of emergency in Porter Ranch due to a natural gas leak that sickened people and forced the relocation of approximately 7,000 homes and several schools (Los Angeles Times 2016; U.S. Energy Information Administration [USEIA] 2018). In 2018, it was announced that NRG Energy would close three natural gas plants in Southern California, including: Etiwanda in Rancho Cucamonga, Ormond Beach in Oxnard, and Ellwood in Goleta (Clean Technica 2018).

PETROLEUM BASED FUEL

In 2019, 15.4 billion gallons of gasoline (non-diesel) were sold statewide (CEC 2019c). In 2019, California also reported a total of 36,423,657 registered vehicles, including automobiles (72 percent), trucks (17 percent), trailers (7.5 percent) and motorcycles (2.4 percent) (California DMV 2019). In 2019, refineries in the state of California sold approximately 4,397 thousand gallons of gasoline a day, steadily decreasing since peaking at selling 8,712.3 thousand gallons per day in 2002 (USEIA 2022).

NUCLEAR POWER

After closure of the San Onofre Nuclear Generating Station in 2012, California has one operating nuclear power plant, Diablo Canyon. Diablo Canyon is located near San Luis Obispo and can generate approximately 2,160 megawatts (MW) from two units. The operating license expires in 2024 for Unit 1 and 2025 for Unit 2. In 2018, Pacific Gas and Electric's (PG&E) application to close Diablo Canyon was approved by the California Public Utilities Commission (CPUC). Also in 2018, PG&E withdrew its application to the Nuclear Regulatory Commission for a licensing extension (CEC 2020).

HYDROELECTRIC POWER

California has 270 hydroelectric facilities with an installed capacity of 14,009 MW. The amount of hydroelectricity varies each year due to snowmelt runoff and rainfall. Within the SCAG region, Imperial, Orange, Los Angeles, Riverside, San Bernardino, Riverside, and Ventura have a combined hydroelectric capacity of approximately 2,596 MW (CEC 2018).

RENEWABLE ENERGY

Renewable energy includes biomass, geothermal plants, small hydroelectric (under 30 MW), solar, and wind. In 2019, California produced 64,336 GWh of electricity in renewable energy (in-state generation), 44 percent of which was solar (CEC 2019a). California has met the goal of 33 percent renewable energy by 2020 and is working towards achieving 60 percent renewable energy by 2030 (CPUC 2021). More recent data for 2020 indicates that California had a power mix of approximately 33 percent of electricity from renewable sources when including both in-State generation and imports (CEC 2021). The 2022 Building Energy Efficiency Standards went into effect on January 1, 2023, and requires most new residences to install solar panels which will decrease demand on electrical suppliers (CEC 2022). The SCAG region includes a large number of renewable energy sources which include solar, wind, and biomass, as shown in **Map 3.6-1, Energy Facilities in the SCAG Region**.

ENERGY AND WATER

Water and energy are dependent on one another as water is essential in the production of electricity and electricity is required to pump, treat, and heat water.

In electricity generation, water is essential to hydropower (although hydro power does not result in consumption of water), thermoelectric power plants, as well as oil and gas extraction. In order to decrease thermoelectric power production's reliance on water many coastal power plants are changing from "once-through cooling" methods to "closed-cycle wet cooling" or "dry cooling" in order to reuse water. Moreover, the state's shift toward producing electricity from more renewables will decrease water use as few renewables require water. The SCAG region includes a number of hydroelectric and other power plants, as illustrated in Map 3.6-1.

California's water system requires electricity and accounts for approximately 20 percent of the state's total electrical consumption. While California's agricultural sector uses almost four times as much water as cities, cities use most of the water-related energy. Water heating makes up 90 percent of water-energy use and the pumping, conveying, and treating of water and wastewater make up the remaining 10 percent. As California moves to increase water efficiency, many measures will in turn reduce energy requirements. As discussed in the water supply discussion in Section 3.19, *Utilities and Service Systems*, of this 2024 PEIR, Southern California is increasing local water supply through investments in desalination and water recycling. While both processes are energy intensive, they would replace a portion of the water being pumped from Northern California, creating an overall decrease in the energy required (PPIC Water Policy Center 2016).

3.6.2 REGULATORY FRAMEWORK

FEDERAL

ENERGY POLICY AND CONSERVATION ACT

The Energy Policy and Conservation Act of 1975 (EPCA; Public Law 94-163, 89 Stat. 871, enacted December 22, 1975) was enacted for the purpose of serving the nation's energy demands and promoting conservation methods when feasibly obtainable.

The EPCA was amended to (US Legal Inc., 2023):

- Grant specific authority to the President to fulfill obligations of the U.S. under the international energy program;
- Provide for the creation of a Strategic Petroleum Reserve capable of reducing the impact of severe energy supply interruptions;
- Conserve energy supplies through energy conservation programs, and the regulation of certain energy uses;
- Provide for improved energy efficiency of motor vehicles, major appliances, and certain other consumer products;
- Provide a means for verification of energy data to assure the reliability of energy data; and
- Conserve water by improving the water efficiency of certain plumbing products and appliances.

CORPORATE AVERAGE FUEL ECONOMY STANDARDS

Established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) Standards (49 CFR Parts 531 and 533) reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and USEPA jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the “maximum feasible level” with consideration given for (1) technological feasibility, (2) economic practicality, (3) effect of other standards on fuel economy, and (4) need for the nation to conserve energy. When these standards are raised, automakers respond by creating a more fuel-efficient fleet. In 2012, NHTSA established final passenger car and light truck CAFE standards for model years 2017 through 2021, which the agency projects will require in model year 2021, on average, a combined fleet-wide fuel economy of 40.3 to 41.0 miles per gallon (mpg). Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by USEPA and NHTSA. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type (USEPA 2011). USEPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type (USEPA 2018a).

In March 2020, USEPA and NHTSA issued the Safer, Affordable, Fuel-Efficient (SAFE) Vehicles Rule that would maintain the CAFE standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFE standards for model year 2020 are 43.7 mpg for passenger cars and 31.3 mpg for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. However, consistent with President Biden’s executive order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, USEPA and NHTSA evaluated whether and how to replace the SAFE Rule (U.S. District Court for the District Court of Columbia 2021). In February 2022, USEPA issued the Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards (USEPA 2021a, 2021b). This final rule revises current GHG standards beginning for vehicles in model year 2023 and through model year 2026 and establish the most stringent GHG standards ever set for the light-duty vehicle sector that are expected to result in average fuel economy label values of 40 mpg, while the standards they replace (the SAFE rule standards) would achieve only 32 mpg in model year 2026 vehicles (USEPA 2021a).

In February 2022, USEPA issued the Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards (USEPA 2021b). This final rule revises current GHG standards beginning with vehicles in model

year 2023 through model year 2026, and it established the most stringent GHG standards ever set for the light-duty vehicle sector that are expected to result in average fuel economy label values of 40 mpg, while the standards they replace (the SAFE rule standards) would achieve only 32 mpg in model year 2026 vehicles.

NATIONAL ENERGY ACT

In response to the energy crisis in the 1970s, Congress passed the National Energy Act of 1978 (NEA) to establish energy efficiency programs, tax incentives, tax disincentives, energy conservation programs, alternative fuel programs, and regulatory and market-based initiatives. It includes five statutes:

- Public Utility Regulatory Policies Act (PURPA) (Public Law 95–617)
- Energy Tax Act (Public Law 95–618)
- National Energy Conservation Policy Act (NECPA) (Public Law 95–619)
- Power Plant and Industrial Fuel Use Act (Public Law 95–620)
- Natural Gas Policy Act (Public Law 95–621)

Of the five statutes, one, PURPA, is relevant to the consideration of the Plan and is therefore discussed in detail below.

PUBLIC UTILITY REGULATORY POLICIES ACT

PURPA was passed in response to the unstable energy climate of the late 1970s. PURPA sought to promote conservation of electric energy. Additionally, PURPA created a new class of nonutility generators, small power producers, from which, along with qualified cogenerators, utilities are required to buy power.

PURPA was in part intended to augment electric utility generation with more efficiently produced electricity and to provide equitable rates to electric consumers. Utility companies are required to buy all electricity from “Qfs” (qualifying facilities) at avoided cost (avoided costs are the incremental savings associated with not having to produce additional units of electricity). PURPA expanded participation of nonutility generators in the electricity market and demonstrated that electricity from nonutility generators could successfully be integrated with a utility’s own supply. PURPA requires utilities to buy whatever power is produced by Qfs (usually cogeneration or renewable energy). Utilities want these provisions repealed, critics argue that it will decrease competition and impede development of the renewable energy industry. The Fuel Use Act of 1978 (FUA) (repealed in 1987) also helped Qfs become established. Under FUA, utilities were not allowed to use natural gas to fuel new generating technologies but Qfs, which were by definition not utilities, were able to take advantage of abundant natural gas and abundant new technologies (such as combined cycle). The technologies lowered the financial threshold for entrance into the electricity generation business as well as shortened the lead time for constructing new plants (Reclamation 1978).

ENERGY POLICY ACT

The Energy Policy Act of 1992 (EPACT92) (Public Law 102-486) is a United States government act. It was passed by Congress and set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 established regulations requiring certain federal, state, and alternative fuel provider fleets to build an inventory of alternative fuel vehicles (AFV). It was amended several times in the Energy Conservation and Reauthorization Act of 1998 and in 2005 via the Energy Policy Act of 2005 (EPAct), which emphasized alternative fuel use and infrastructure development (USDOE, Undated[a]). President George W.

Bush signed the EPAct (Public Law 109-58) into law on August 8, 2005. This comprehensive energy legislation contains several electricity-related provisions that aim to:

- Help ensure that consumers receive electricity over a dependable, modern infrastructure;
- Remove outdated obstacles to investment in electricity transmission lines;
- Make electric reliability standards mandatory instead of optional; and
- Give federal officials the authority to site new power lines in DOE-designated national corridors in certain limited circumstances.

The Renewable Fuel Standard (RFS) program was created under the EPAct and established the first renewable fuel volume mandate in the United States. The program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders. As required under EPAct, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012.

ENERGY INDEPENDENCE AND SECURITY ACT

The Energy Independence and Security Act (EISA) (Public Law 110-140) was signed into law by President George W. Bush on December 19, 2007. The Act's goal is to achieve energy security in the United States by increasing renewable fuel production, improving energy efficiency and performance, protecting consumers, improving vehicle fuel economy, and promoting research on GHG capture and storage. Under the EISA, the RFS program (RFS2) was expanded in several key ways:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel and set separate volume requirements for each one.
- EISA required EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

RFS2 lays the foundation for achieving significant reductions of GHG emissions from the use of renewable fuels, for reducing imported petroleum, and encouraging the development and expansion of our nation's renewable fuels sector.

The EISA also includes a variety of new standards for lighting and for residential and commercial appliance equipment. The equipment includes residential refrigerators, freezers, refrigerator-freezers, metal halide lamps, and commercial walk-in coolers and freezers.

MOVING AHEAD FOR PROGRESS IN THE 21ST CENTURY

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of these regulations.

HEAVY-DUTY VEHICLE PROGRAM

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of these regulations.

EXECUTIVE ORDER 13514, FEDERAL LEADERSHIP IN ENVIRONMENTAL, ENERGY, AND ECONOMIC PERFORMANCE

Executive Order (EO) 13514 was signed by President Obama on October 5, 2009. It expands on the energy reduction and environmental performance requirements for federal agencies identified in EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management. The goals of EO 13514 are as follows:

- Reduce petroleum consumption by 2 percent per year through FY2020 (applies to agencies with fleets of more than 20 vehicles) (Baseline FY2005).
- Reduce by 2 percent annually:
 - Potable water intensity by FY2020 (26 percent total reduction) (Baseline FY2007).
 - Industrial, landscaping, and agricultural water intensity by FY2020 (20 percent total reduction) (Baseline FY2010).
- Achieve 50 percent or higher diversion rate:
 - Non-hazardous solid waste by FY2015.
 - Construction and demolition materials and debris by FY2015.
- Ensure at least 15 percent of existing buildings and leases (>5,000 gross square feet) meet the Guiding Principles by FY2015, with continued progress towards 100 percent.
- Ensure 95 percent of all new contracts, including non-exempt contract modifications, require products and services that are energy-efficient, water-efficient, bio-based, environmentally preferable, non-ozone depleting, contain recycled-content, non-toxic or less-toxic alternatives (The White House 2009).

EXECUTIVE ORDER 13693, PLANNING FOR FEDERAL SUSTAINABILITY IN THE NEXT DECADE

EO 13693 was signed by President Obama on March 19, 2015, and revoked EO 13514. The goal of EO 13693 is to maintain federal leadership in sustainability and GHG emissions reductions. EO 13693 promotes building energy conservation, efficiency, and management by reducing agency building energy intensity measured in British thermal units per gross square foot by 2.5 percent annually through the end of FY 2025, relative to the baseline of the agency's building energy use in FY 2015 and taking into account agency progress to date. EO 13693 also sets agency water use efficiency standards and management practices as well as mandates a fleet-wide per-mile GHG emissions reduction from agency fleet vehicles.

EXECUTIVE ORDER 13834, EFFICIENT FEDERAL OPERATIONS

President Trump issued EO 13834 on May 17, 2018, which revokes EO 13693. EO 13834 confirms that it is US policy that federal agencies meet energy and environmental performance statutory requirements to increase efficiency, optimize performance, eliminate unnecessary use of resources, and protect the environment and includes the following goals for the agencies:

- Achieve and maintain annual reductions in building energy use and implement energy efficiency measure that reduce costs;
- Meet statutory requirements relating to the consumption of renewable energy and electricity;

- Reduce potable and non-potable water consumption, and comply with stormwater management requirements;
- Utilize performance contracting to achieve energy, water, building modernization, and infrastructure goals;
- Ensure that new construction and major renovation conform to applicable building energy efficiency requirements and sustainable design principles; consider building efficiency when renewing or entering into leases; implement space utilization and optimization practices; and annually assess and report on building conformance to sustainability metrics;
- Implement waste prevention and recycling measures and comply with all federal requirements with regard to solid, hazardous, and toxic waste management and disposal;
- Acquire, use, and dispose of products and services, including electronics, in accordance with statutory mandates for purchasing preference, Federal Acquisition Regulation requirements, and other applicable federal procurement policies; and
- Track and report on energy management activities, performance improvements, cost reductions, GHG emissions, energy and water savings, and other appropriate performance measures (Fed Center 2019).

FUEL ECONOMY STANDARDS

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of this regulation.

CODE OF FEDERAL REGULATIONS CHAPTER 40, PARTS 1039, 1065, AND 1068

The Code of Federal Regulations established tiered emissions standards for construction equipment in order to phase in cleaner burning equipment that will reduce NO_x and particulate matter emissions from exhaust. After 2014, all construction equipment manufactured in the United States is required to meet the highest tier of emission standards, Tier 4. USEPA oversees the implementation of these regulations (USEPA 2018b).

STATE

ASSEMBLY BILL 2076, REDUCING DEPENDENCE ON PETROLEUM

CEC and the California Air Resources Board (CARB) are directed by law, AB 2076 (2000), to develop and adopt recommendations for reducing dependence on petroleum. A performance-based goal is to reduce petroleum consumption to 15 percent below 2003 demand by 2020. The options include the following (CARB 2003):

- Mid-Term Options (could be fully implemented in the 2010–2020 timeframe):
 - Double fuel efficiency of current model light duty vehicles to 40 miles/gallon; and
 - Use natural gas-derived Fischer-Tropsch fuel as a 33 percent blending agent in diesel.
- Long-Term Options:
 - Introduce fuel cell light duty vehicles in 2012, increasing to 10 percent of new vehicle sales by 2020, and 20 percent by 2030.

- Recommendations include (CARB 2003):
 - The Governor and Legislature should adopt the recommended statewide goal of reducing demand for on-road gasoline and diesel to 15 percent below the 2003 demand level by 2020 and maintaining that level for the foreseeable future;
 - The Governor and Legislature should work with the California delegation and other states to establish national fuel economy standards that double the fuel efficiency of new cars, light trucks and SUVs; and
 - The Governor and Legislature should establish a goal to increase the use of non-petroleum fuels to 20 percent of on-road fuel consumption by 2020 and 30 percent by 2030.

Since this bill was passed, California has set stricter standards for many of the goals laid out in AB 2076. For example, in January 2018, Governor Jerry Brown issued EO B-48-18 that guarantees \$2.5 billion dollars to help Californians buy electric vehicles and expand a network of charging stations in order to have 5 million electric cars on the road by 2030 (California Fuel Cell Partnership 2018). Moreover, as stated under *Federal* above, California worked with four major automotive manufacturers to announce that the state would have a fleet of vehicles averaging approximately 50 mpg by 2026 (The Washington Post 2019).

WARREN-ALQUIST ACT

The Warren-Alquist Act was passed in 1974 to establish CEC to respond to the energy crisis in the early 1970s and to address the state's unsustainable growing demand for energy resources. The CEC's Chief Counsel's Office publishes updated versions of the Warren-Alquist Act every two years. The most recent version was approved in February 2019 (CEC 1974).

ASSEMBLY BILL 1007, ALTERNATIVE FUELS PLAN

The Alternative Fuels Plan adopted in 2007 by the State Energy Resources Conservation and Development Commission and the State Air Resources Board as required under state law, AB 1007, recommends that the governor set targets on a gasoline gallon equivalent basis for use of 10 different alternative motor fuels in the on-road and off-road sectors by 9 percent by 2012, which has been achieved, and 11 percent by 2017 and 26 percent by 2022. These targets do not apply to air, rail or marine fuel uses. These goals will require a dramatic expansion in the use of such fuels as electricity, compressed natural gas, hydrogen, renewable diesel, bio-diesel and ethanol in motor vehicles.

Also built into the Alternative Fuels Plan, is a multi-part strategy to develop hybrid and electric vehicle technologies; build the infrastructure to deliver the alternative fuels; increase the blending of more biofuels into gasoline and diesel; improve the fuel efficiency of vehicles; and reduce vehicle miles traveled by California motorists with more effective land use planning.

ASSEMBLY BILL 758 ENERGY: ENERGY AUDIT

New state law promulgated under AB 758 mandates CEC to develop a comprehensive energy efficiency program for existing buildings. This bill will be implemented in three phases. In phase I, during the American Recovery and Reinvestment Act of 2009 (ARRA) implementation period (2010–2012), CEC used ARRA funds to do state and local upgrade programs, workforce training, financing, and an outreach campaign. CEC published the Comprehensive Energy Efficiency Program for Existing Buildings Scoping Report and adopted the AB 758 Action Plan. Phase II will focus on implementing the roadmap necessary for foundational No Regrets Strategies to take hold and Voluntary

Pathways to scale to achieve energy efficiency goals, partnerships, and market development. Phase III will develop and institute Mandatory Approaches that will move energy efficiency practices into the mainstream. Transformation and maturation of the energy efficiency marketplace will require the formation of partnerships and cooperation among all stakeholders (CEC 2012).

On December 14, 2016, CEC published the updated version of the Existing Buildings Energy Efficiency Action Plan. The Plan provides a 10-year roadmap to activate market forces and transform California's existing residential, commercial, and public building stock into high-performing and energy-efficient buildings. The results of this effort will be accelerated growth of energy efficiency markets, more effective targeting and delivery of building upgrade services, improved quality of occupant and investor decisions, and vastly improved performance of California's buildings. Equally important, this effort will deliver substantial energy savings and GHG emissions reductions, contributing to the collective goal of reducing the impacts of climate change while improving the resilience of the state's built environment and economy (CEC 2016).

ASSEMBLY BILL 525 (2021)

On September 23, 2021, the CEC adopted AB 525 requires the CEC, in coordination with specified agencies, to work with stakeholders, state, local, and federal agencies, and the offshore wind energy industry to identify suitable sea space for wind energy areas in federal waters sufficient to accommodate the offshore wind planning goals for 2030 and 2045. The bill also requires the CEC, in coordination with relevant state and local agencies, to develop a plan to improve waterfront facilities that could support a range of floating offshore wind energy development activities, to assess the transmission investments and upgrades necessary to support the offshore wind planning goals for 2030 and 2045, as specified, to develop and produce a permitting roadmap that describes timeframes and milestones for a permitting process for offshore wind energy facilities and associated electricity and transmission infrastructure off the coast of California, and identify potential impacts on coastal resources, fisheries, Native American and Indigenous peoples, and national defense, and strategies for addressing those potential impacts, to be included in the strategic plan, as specified.

In August 2022, the CEC adopted a report establishing offshore wind goals of 5,000 MW by 2030 and 25,000 MW by 2045 in an effort to transition to 100% clean electricity. The CEC developed the report in coordination with federal, state, and local agencies and stakeholders including Tribal governments, fisheries and other ocean users. It is the first of several products the CEC must prepare to create a strategic plan for offshore wind energy development as required by Assembly Bill 525. (CEC 2022b)

ASSEMBLY BILLS 32, 197, AND 1493

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of these regulations.

ADVANCED CLEAN CARS PROGRAM

Refer to Section 3.3, *Air Quality* [OR] Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of this regulation.

CARB SMARTWAY/PHASE I AND PHASE II HEAVY-DUTY VEHICLE GREENHOUSE GAS REGULATION

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of this regulation.

RENEWABLE PORTFOLIO STANDARD

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of this regulation.

CALIFORNIA APPLIANCE EFFICIENCY REGULATIONS

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of this regulation.

TITLE 24, BUILDING STANDARDS CODE AND CALGREEN CODE

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of this regulation.

CALIFORNIA SOLAR INITIATIVE

On January 12, 2006, CPUC approved the California Solar Initiative (CSI) (R.04-03-017), which provides \$2.9 billion in incentives between 2007 and 2017. CPUC oversaw a \$2.5 billion program for commercial and existing residential customers, funded through revenues and collected from gas and electric utility distribution rates. Furthermore, CEC managed \$350 million targeted for new residential building construction, utilizing funds already allocated to CEC to foster renewable projects between 2007 and 2011.

On March 2, 2006, CPUC opened a proceeding to develop rules and procedures for the CSI and to continue consideration of policies for the development of cost-effective, clean, and reliable distributed generation. On August 21, 2006, the governor signed SB 1, which directed CPUC and CEC to implement the CSI program consistent with specific requirements and budget limits set forth in the legislation and directed CPUC and CEC to create 3,000 MW of new, solar-produced electricity by 2017. Through the end of 2021, approximately 11,106 MW of solar capacity has been installed, which exceeds the goal of 3,000 MW by roughly 370 percent (CPUC 2022).

CALIFORNIA CAP AND TRADE PROGRAM

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of this regulation.

CARB'S CLIMATE CHANGE SCOPING PLAN

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of this regulation.

CARB'S ANNUAL EVALUATION OF FUEL CELL ELECTRIC VEHICLE DEPLOYMENT AND HYDROGEN FUEL STATION NETWORK DEVELOPMENT

The development of supporting charging and fueling infrastructure is necessary to achieve California's targets for GHG emission reductions and air quality improvement. Assembly Bill 8 (AB 8) (Perea) extended CEC's Clean Transportation Program to support hydrogen fueling stations network development that enables the deployment of light-duty fuel cell electric vehicles (FCEV) in California. The program is currently authorized through January 1, 2024. Per AB 8, CARB annually completes an analysis of the current progress and projected future development of California's hydrogen fueling station network and deploying FCEVs. The annual reports are based on information provided by auto manufacturers, station developers, and collaborating State agencies like CEC and discuss the location, estimated number of FCEVs currently on the road and projected for future deployment, the coverage and capacity provided by the currently available and future hydrogen fueling network (based on known projects in development), and recent developments in hydrogen fueling station technology and standards.

EXECUTIVE ORDER S-06-06

Governor Arnold Schwarzenegger signed EO S-06-06 into law on April 25, 2006, which requires the state to meet the following targets regarding bioenergy production and use (Office of the Governor 2006):

- The state produces a minimum of 20 percent of its own biofuel within California by 2010, 40 percent by 2020, and 75 percent by 2050; and
- The state meets a 20 percent target within the established state goals for renewable generation for 2010 and 2020.

EXECUTIVE ORDER B-18-12

Governor Edmund G. Brown Jr. signed EO B-18-12 into law on April 25, 2012, which directs state agencies to reduce their grid-based energy purchases by at least 20 percent by 2018, as compared to a 2003 baseline. Pursuant to EO B-18-12, all new state buildings and major renovations beginning design after 2025 shall be constructed as Zero Net Energy facilities with an interim target for 50 percent of new facilities beginning design after 2020 to be Zero Net Energy. State agencies shall also take measures toward achieving Zero Net Energy for 50 percent of the square footage of existing state-owned building area by 2025. Further, the following measures relevant to energy are required (California Green Buildings 2012):

- Any proposed new or major renovation of state buildings larger than 10,000 square feet shall use clean, on-site power generation, such as solar photovoltaic, solar thermal and wind power generation, and clean back-up power supplies, if economically feasible;
- New or major renovated state buildings and build-to-suit leases larger than 10,000 square feet shall obtain LEED "Silver" certification or higher, using the applicable version of LEED;
- New and existing buildings shall incorporate building commissioning to facilitate improved and efficient building operation; and
- State agencies shall identify and pursue opportunities to provide electric vehicle charging stations, and accommodate future charging infrastructure demand, at employee parking facilities in new and existing buildings.

EXECUTIVE ORDER B-48-18

On January 26, 2018, Governor Edmund G. Brown Jr. signed EO-48-18 to boost the use of zero-emissions vehicles (ZEV), electric vehicle charging infrastructure, and hydrogen refueling infrastructure in California. The order will implement the Governor's target of 5 million ZEVs on the road by 2030 and 250,000 vehicle charging stations and 200 hydrogen refueling stations by 2025 (California Fuel Cell Partnership 2018).

EXECUTIVE ORDERS B-30-15, N-19-19, S-1-07, S-14-08, AND S-21-09

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of these regulations.

SENATE BILLS 32, 107, 100, 350, 375, 1078, AND 1368

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a detailed discussion of these regulations.

PUBLIC SAFETY POWER SHUTOFFS

In 2012, CPUC ruled that California Public Utilities Code Sections 451 and 399.2(a) give the electric investor-owned utilities (IOU) authority to shut off the electric power to protect public safety (CPUC 2023). This allows the electric IOUs (San Diego Gas & Electric, Pacific Gas and Electric, Southern California Edison, Liberty Utilities, Bear Valley Electric Service, and PacifiCorp) to shut off power to prevent catastrophic wildfires when strong winds, heat events, and related conditions are present. This effort is called a public safety power shutoff (PSPS). PSPS events can leave communities and essential facilities without power, which brings its own risks and hardships, especially for vulnerable communities and individuals. In the event of a PSPS, SCE and other IOUs typically have a plan beginning days to weeks before expected outages. SCE considers PSPS when weather and fire experts forecast dangerous conditions five days in advance. Three days before an expected severe weather event, SCE will continue monitoring the situation, field crews will look for factors that could increase risk of fire, and decision makers will review options for supplying power from different circuits to keep residents energized. If the weather pattern has not shifted two days before the severe weather event, SCE will notify customers who require critical care or rely on electric-powered medical devices. On the day of a severe weather event, SCE will monitor the weather every ten minutes and will shut off power as necessary until the weather event ceases (SCE 2021).

REGIONAL

Many of the cities and counties within the region address energy in their general plans. Sections devoted to energy or utilities discuss the current state of energy procurement and utilization within specific jurisdictions and the local plans to improve current methods and move towards cleaner, renewable energy sources.

CLEAN CITIES PROGRAM

The U.S. Department of Energy's Clean Cities Program promotes voluntary, locally based government/industry partnerships for the purpose of expanding the use of alternatives to gasoline and diesel fuel by accelerating the deployment of AFVs and building a local AFV refueling infrastructure. The mission of the Clean Cities Program is to advance the nation's economic, environmental and energy security by supporting local decisions to adopt practices that contribute to the reduction of petroleum consumption. The Clean Cities Program carries out this mission through a network of more than 80 volunteer coalitions, which develop public/private partnerships to promote alternative fuels and vehicles, fuel blends, fuel economy, hybrid vehicles, and idle reduction (USDOE, Undated[b]).

The Southern California/SCAG Clean Cities Coalition was first designated by the U.S. Department of Energy on March 1, 1996. SCAG directly administers the SCAG Clean Cities Program. This coalition supports government and industry partnerships to expand AVFs and infrastructure throughout the SCAG region.

SCAG FUTURE COMMUNITIES FRAMEWORK

The Future Communities Framework was developed to improve data collection, analysis, and application across Southern California. New technologies are critical to policy-making and planning decisions and the Framework presents SCAG with strategic recommendations for addressing big data and new technologies and the potential adoption of innovative policies. Advanced efficiency and innovation are especially critical when considering energy generation and utilization, as the state transitions to a clean energy future. The Framework outlines the potential for SCAG to increase outreach and data sharing with agencies within the region on climate adaptation, environmental, and energy data.

COUNTIES

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a comprehensive discussion of County plans related to GHG emissions and energy efficiency programs.

LOCAL

Many cities within the SCAG region have established green plans or climate action plans (CAP) that include goals and policies to reduce energy use and the associated emissions to meet AB 32 and SB 32 climate goals. Refer Section 3.8, *Greenhouse Gas Emissions*, Table 3.8-6 for a comprehensive list of local jurisdictions' sustainability plans, CAPs, energy action plans, and other related plans. Major cities within the SCAG region that have prepared plans that will reduce energy use include Los Angeles and Riverside, these plans are discussed below.

LOS ANGELES GREEN NEW DEAL

In April 2019, Mayor Eric Garcetti announced Los Angeles' Green New Deal to set goals for the city's sustainable future. Los Angeles' Green New Deal commits to uphold the Paris Climate Agreement (see Section 3.8, *Greenhouse Gas Emissions*), deliver environment justice through an inclusive green economy, planning to ensure every City resident has the ability to join the green economy, and a determination to lead by example within City government. The goals and targets of the Green New Deal related to energy include:

- Building a zero-carbon electricity grid – reaching an accelerated goal of 80 percent renewable energy supply by 2036 as Los Angeles leads California toward 100 percent renewable by 2045.
- Mandating that all new municipally owned building and major renovations be all-electric, effective immediately, and that every building in Los Angeles – from skyscrapers to single-family homes – become emissions free by 2050.
- Recycling 100 percent of our wastewater by 2035; sourcing 70 percent of our water locally – a significant increase from our existing pathway; and nearly tripling the maximum amount of stormwater captured.

Refer to Section 3.8, *Greenhouse Gas Emissions*, for a comprehensive discussion of Los Angeles' Green New Deal.

CITY OF RIVERSIDE GREEN ACTION PLAN

The City of Riverside's Green Action Plan aims to reduce the City's environmental impact by increasing the City's renewable energy production and reduce the City's GHG emissions, waste, and water consumption. Regarding energy, the Green Action Plan includes goals to install at least 20 MW of photovoltaic systems by 2020, reduce the City's peak electrical load demand by 10 percent, and meet 33 percent of electricity demand from renewable sources by 2050 (City of Riverside 2012).

3.6.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to energy if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation;
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis of energy considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

This section includes a discussion of the potential energy impacts of the proposed policies, programs, and projects included in the Plan, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy, identifies mitigation measures for the impacts, and evaluates the residual impacts. Energy resources, including non-renewable energy consumption, residential and commercial building energy consumption, water-related energy consumption, and transportation related fuel consumption, were evaluated in accordance with Appendix G of the 2023 CEQA Guidelines. In addition, Appendix F of the 2023 CEQA Guidelines, which generally provides direction on how an EIR can address energy and outlines how projects can demonstrate energy conservation, was used to guide the analysis.

Energy resources within the SCAG region were evaluated at a programmatic level of detail, in relation to the General Plans of six counties and 191 cities within the SCAG region; data available from USEIA for California (USEIA 2021); and review of related literature germane to the SCAG region.

The methodology for determining the significance of energy consumption includes the use of SCAG's Scenario Planning Model (SPM) in order to provide a conservative estimate of regional energy consumption for purposes of comparison of land use-related energy consumption with respect to electricity, natural gas, water, and transportation. The SPM was used to compare existing conditions (2019) to the Plan horizon year (2050). Total estimated energy consumption in the Plan horizon year of 2050 is expected to represent the most conservative (i.e., highest energy consumption of any year in the Plan) because population and employment are projected to be higher in 2050 than in any earlier year, and future conservation efforts may not be fully quantified at this time. SCAG's SPM is described in Section 3.0, *Introduction to the Analysis*.

SPM calculates building energy use based on anticipated demand for electricity and natural gas combustion from residential and commercial buildings. Water-related energy use refers to the two main water-related energy use categories: a) system use, including the transport and treatment of residential water consumed; and b) end uses, including all uses of water that occur within homes (e.g., water heating). SPM calculates energy use for the water system uses only. The per-gallon energy use factors associated with the system uses are based on the SCAG regional average for urban water system energy intensity from Next 10 and Pacific Institute's *The Future of California's Water-Energy-Climate Nexus* report. (Next 10 & Pacific Institute, 2021) Energy associated with end use water is captured as part of building energy demand.

CEQA does not require a full lifecycle analysis of potential environmental effects. This is because the impact analysis in CEQA is subject to the rule of reason. Moreover, CEQA only requires analysis of impacts that are directly or indirectly attributable to the project under consideration (CEQA Guidelines Section 15064(d)). Lifecycle analysis in general may not be consistent with CEQA because the term 'lifecycle' could refer to emissions beyond those that could be considered 'indirect effects' of a project under CEQA Guidelines Section 15358.

The Natural Resources Agency has indicated that a lifecycle analysis is not necessary to adequately analyze a project's energy or GHG impacts. Pursuant to the Natural Resources Agency's Final Statement of Reasons for the Regulatory Action Amendments to the State CEQA Guidelines, the energy impact analysis in CEQA is subject to the "rule of reason" (CEQA Guidelines Section 15126.2(b)):

"This analysis of energy impacts is subject to the rule of reason and must focus on energy demand caused by the project."

This was added to the CEQA Guidelines to place a reasonable limit on the analysis and signal that a full lifecycle analysis will generally not be required. Therefore, a "lifecycle" analysis of the Plan's energy impacts is not prepared.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT ENR-1 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan has the potential to result in wasteful, inefficient, or unnecessary energy consumption. The Plan includes transportation projects (e.g., bikeway and pedestrian projects, rail projects, transit projects, Transportation System Management [TSM] and Transportation Demand Management [TDM] projects, etc.) that

would improve the availability of alternative transportation modes and help reduce VMT, congestion, and resultant air pollutants in the SCAG region as compared to a future without Plan implementation. As described in Chapter 2, *Project Description*, the Plan includes over \$200 billion in transit-related expenditures and active transportation investments.

Beyond reductions in VMT, many of the Plan's transportation projects promote the use and generation of renewable energy, reducing the need for fossil fuel energy. For example, the Plan includes the installation of concrete pavement solar panels at a rest area in Los Angeles/Kern County; construction of a solar power plant, charging stations, and related equipment to introduce zero-emissions buses, vans, and support vehicles in western Riverside County; and installation of solar power generation and battery storage facilities at existing transit maintenance facilities in Montclair and San Bernardino (see the Project List Technical Report in the Plan). Furthermore, the Plan's policies and strategies encourage development in PDAs. The Plan would result in a reduction of per capita VMT, combined with federal and state policies that require reductions in fossil fuel consumption (see S-06-06 and EO B-48-18), and increased renewable energy use and availability (see EO B-18-12), and increased building efficiency (EO 13834). However, the SCAG region includes a diverse set of jurisdictions with varying levels of regulation and enforcement. Adoption of policies and construction of infrastructure would not occur unilaterally and/or at the same speed, and SCAG does not have implementation authority over transportation projects or any land use authority. As such, the Plan could result in variable application of policies leading to differing energy use efficiencies across the region. Therefore, implementation of the Plan could result in wasteful, inefficient, or unnecessary consumption of energy and energy impacts from construction and operations.

CONSTRUCTION

TRANSPORTATION PROJECTS

Construction of transportation projects would result in short-term consumption of energy resulting from the use of construction equipment and processes. Transportation projects under the Plan include electric and hydrogen vehicle charging stations, recycling facilities for batteries as combustion engines are phased out and near-zero and zero-emissions vehicles are adopted, and modification of existing facilities to accommodate alternative-fueled vehicles. In addition, roadway and transit construction materials, such as asphalt, concrete, surface treatments, steel, rail ballast, as well as building materials, require energy to be produced, and would likely be used in projects that involve new construction or replacement of older materials. While energy would be required to complete construction for any new or modified facilities or infrastructure projects, construction would be temporary and limited in magnitude, such that a reasonable amount of energy would be expended. In addition, in this case, the temporary expenditure of energy is to, in the long-term, allow for a transition for the transportation and construction sectors to use less energy. Energy use during construction would likely not be wasteful, inefficient, or unnecessary. However, given the large geographic area of the SCAG region and potential for unforeseen circumstances to occur through the 2050 Plan horizon, it is possible that wasteful energy consumption associated with construction for any new or modified facilities or infrastructure projects could occur.

Construction of individual transportation projects within the SCAG region under the Plan also use energy resources, such as petroleum or alternative fuels to operate off-road construction equipment. USEPA set Tier 4 construction engine standards in order to reduce NO_x and particulate matter emissions; however, Tier 4 standards also provide greater energy efficiency and productivity (Diesel Technology Forum). CARB received authorization from USEPA on September 13, 2013, to enforce the Off-Road regulation's restrictions on fleets adding vehicles with older tier engines and began enforcing on January 1, 2014 (CARB 2016). CARB is in the process of developing

potential amendments to the off-road diesel engine standards, which are referred to as the Tier 5 rulemaking and aims to reduce NO_x, PM₁₀, and PM_{2.5} emissions from new, off-road compression-ignition engines compared to what is allowed by the current most stringent Tier 4 emissions standards. CARB plans to bring a rulemaking proposal in 2025 with implementation of the Tier 5 standards expected to begin in 2028 (CARB 2023). Construction also requires heavy duty truck trips for vendor trips or to remove grading and demolition debris from individual sites. In order to address GHG emissions from these heavy-duty trucks, CARB set regulations in 2008 to increase the fuel efficiency of heavy-duty trucks through improving the trailer aerodynamics and using low rolling resistance tires (see *Regulatory Framework*, above). This policy is expected to have reduced diesel fuel consumption in heavy duty trucks by 500 million gallons in California from 2010 to 2020 (CARB 2013). Additionally, in an effort to reduce diesel particulate matter (DPM), NO_x, and other criteria air pollutant emissions from vehicles, CARB issued the Truck and Bus Regulation in 2008 and the Advanced Clean Truck Regulation in 2020. The regulation requires nearly all trucks and buses to have 2010 or newer model year engines by January 1, 2023 (CARB 2019).

LAND USE DEVELOPMENT

Implementation of the Plan with respect to land use development has the potential to result in short-term consumption of energy. The California Green Building Standards Code (CALGreen Code) (California Building Standards Commission 2022) includes specific requirements related to recycling, construction materials and energy efficiency standards, which would apply to construction of land use projects, which would help to minimize waste and energy consumption.

Similar to transportation projects, construction of development projects would use energy resources, such as petroleum fuel to operate on- and off-road construction equipment and vehicles. As noted above, USEPA Tier 4 construction engine standards provide greater energy efficiency and productivity (Diesel Technology Forum).

OPERATION

TRANSPORTATION PROJECTS

The SCAG region is anticipated to grow by nearly 2.1 million new residents between 2019 and 2050. Due to decreases in per capita petroleum fuel and energy consumption through rising utility prices and efficiency improvements, residential and building energy consumption is expected to decrease. A discussion of residential energy use, building energy use, petroleum usage, and energy and water-related energy consumption with the Plan is provided below.

Daily operation of the regional transportation system uses energy in the form of fuel consumed by propulsion of passenger vehicles (see discussion below) as well as other forms of transportation (buses, planes, ships, and trains). As discussed in Section 3.17, *Transportation*, in this 2024 PEIR, the Plan would not reduce total VMT but would reduce VMT per capita. The Plan invests in the expansion of critical highways and road improvements which would increase vehicle capacity, and overall efficiency of the transportation network. Increases in motor vehicle trips are primarily a combined function of population and employment growth. Population growth and growth in VMT would occur within the region regardless of whether the Plan is implemented, but under the Plan more efficient use of the transportation system is anticipated resulting in a lower VMT per capita. The Plan would result in greater availability of public transit and other alternative modes of transportation, such as complete streets and active transportation, that would facilitate a more energy efficient region. The reduction in overall congestion resulting from these service level improvements would reduce fuel consumption and promote fuel efficiency (see analysis of fuel consumption below with respect to anticipated development). New transportation facilities that require

energy for operation, such as signal lighting, roadway or parking lot lighting and electronic equipment will increase energy demand. New landscaping irrigation of transportation projects also incrementally increases energy demand through water pumping and treatment. In addition, statewide policies targeted at improving the fuel efficiencies of on-road vehicle petroleum fuel consumption by light-, medium-, and heavy-duty vehicles are anticipated to result in decreased petroleum use by 2050. However, increased demand and consumption of alternative fuel sources such as electricity and hydrogen is anticipated in response to zero-emissions and near-zero-emissions vehicle regulations.

LAND USE DEVELOPMENT

RESIDENTIAL ENERGY USE

Growth pursuant to the policies, strategies, and growth vision in the Plan has the potential to increase residential energy consumption due to the increase in total households by 2050. It is expected that the SCAG region would add approximately 1.6 million households from 2019 to 2050. The residential energy consumption per household is expected to decline from 61.2 million Btu in 2019 to 44.6 million Btu in 2050 with implementation of the Plan (**Table 3.6-1, Residential Energy Use and Cost per Household**). The Plan includes policies and strategies intended to increase sustainable and energy efficient residential development (compact development is more energy efficient). As a result, it is projected that the Plan would result in a 27-percent reduction in per household energy consumption and an estimated 18-percent reduction in residential electricity consumption per household compared to 2019 (Table 3.6-1). Due to the reductions in per household energy and electricity consumption, the overall energy consumption is expected to decrease by approximately 8.2 percent.

TABLE 3.6-1 Residential Energy Use and Cost per Household

	2019	PLAN 2050	PERCENTAGE DIFFERENCE FROM 2019 TO PLAN
Residential energy use per household (Btu in millions)	61.2	44.7	-27.0%
Residential electricity use per household (kWh)	6,962	5,161	-25.9%
Number of households	6,193,000	7,798,000	25.9%
Residential energy use (Btu in trillions)	379	348	-8.2%
Residential energy cost (in billions \$)	9.0	11.0	22.2%

Residential energy costs are expected to increase from \$9 billion in 2019 to \$11 billion in 2050 across the SCAG region. While overall costs are expected to increase in the region the cost per household is expected to decrease by approximately \$42 from 2019 to 2050 (**Table 3.6-2, Residential Energy and Water Cost per Household**). Lower energy costs, despite increasing electricity and natural gas per unit costs, can be explained by lower energy use per household. Table 3.6-2 shows there would be an estimated 3.2-percent decrease in household cost compared to the 2019 base year. The total utility cost per household, including both energy and water cost is expected to decrease by \$56 from 2019 to 2050. Energy costs are anticipated to decrease, but do not proportionally decrease as much as water costs.

TABLE 3.6-2 Residential Energy and Water Cost per Household

	(2019)	2050 PLAN	PERCENTAGE DIFFERENCE FROM 2019 TO PLAN
Residential energy cost per household	\$1,453	\$1,411	-2.9%
Residential water cost per household	\$308	\$294	-4.6%
Total utilities (energy + water) cost per household	\$1,761	\$1,705	-3.2%

Although the total population is expected to increase by nearly 11 percent over the lifetime of the Plan, the overall energy use is expected to decrease with large increases in per household energy and electricity efficiency. These increases in efficiency are due in part to California building regulations. For example, through the 2022 Title 24 Building Energy Efficiency Standards, California will require every new home to be equipped with solar power (The New York Times 2018; CEC 2022). Therefore, all new single-family homes and multifamily homes up to three stories in height, constructed over the duration of the Plan will have solar panels. Additionally, the Plan includes policies and strategies to promote transit-oriented development, which tends to be more energy efficient as it moves more people per mile. Further, many transit agencies use natural gas, electricity, or other clean energy for their fleet. Finally, increases in energy cost will drive down demand. However, as discussed above, the SCAG region includes a diverse set of jurisdictions with varying levels of regulation and enforcement. It would be speculative to assume that all jurisdictions would realize consistent energy savings across the region. Therefore, residential energy use could result in wasteful, inefficient, or unnecessary energy consumption.

BUILDING ENERGY CONSUMPTION

By 2050, the SCAG region is expected to add nearly 2.1 million people. Due to population growth and the associated development, building energy consumption is projected to increase. The Plan encourages compact land use patterns with a focus on urban infill growth and walkable, mixed-use communities. Mixed-use, walkable, and urban infill development combined with transportation investments that increase active transportation opportunities and improved facilities would be expected to accommodate more growth in more energy-efficient housing types. Examples of energy efficient housing types include townhomes, apartments, and smaller single-family homes, as well as more compact commercial building types. Overall, development under the Plan would result in an increase in total building energy consumption, however, buildings will be more energy efficient in 2050 (**Table 3.6-3, Building Energy Consumption – Residential and Commercial**). Total residential and commercial building energy consumption (electricity and natural gas) is expected to decrease by 7.7 percent under the Plan (Table 3.6-3). The residential and commercial sectors would use less energy in the future (8.1 percent decrease and 7.3 percent decrease, respectively); the commercial sector would use the same amount of energy in the future.

TABLE 3.6-3 Building Energy Consumption – Residential and Commercial

	BASE YEAR (2019)	PLAN (2050)	PERCENTAGE DIFFERENCE FROM BASE YEAR
Residential electricity consumed (GWh)	43,116	40,249	-6.6%
Residential natural gas consumed (therms in billions)	2.3	2.1	-9.1%
Residential energy consumed (Btu in trillions)	379	348	-8.1%
Commercial electricity consumed (GWh)	81,589	68,802	-15.7%
Commercial natural gas consumed (therms in billions)	2.6	2.6	1.7%
Commercial energy consumed (Btu in trillions)	536	497	-7.3%
Total energy consumed (Btu in trillions)	915	845	-7.7%

As shown above, total building energy consumed in the SCAG region over the lifetime of the Plan is anticipated to decrease by 1.9 percent. According to SCAG, the population in 2019 is approximately 18.8 million people, resulting in a per capita building energy use 48.6 million Btu/person. The population is estimated to reach almost 20.9 million people by 2050, resulting in a 2050 per capita building energy use of 40.4 million Btu/person. Therefore, per capita building energy use will decrease by 8.2 million Btu/person. As a result, building energy efficiency will increase. However, as mentioned above, the SCAG region includes a diverse set of jurisdictions with varying levels of regulation and enforcement. It would be speculative to assume that all jurisdictions would realize consistent energy savings across the region. Therefore, total energy use could result in wasteful, inefficient, or unnecessary energy consumption.

PETROLEUM FUEL

Petroleum fuel consumption is associated with energy consumed by cars and other light duty vehicles as a result of people traveling between the various land uses. Fuel consumption is expected to decrease by 30.6 percent from 7.6 billion gallons in 2019 to the projected 5.3 billion gallons in 2050 (**Table 3.6-4, SCAG Region Estimated Transportation Fuel Consumption**).

TABLE 3.6-4 SCAG Region Estimated Transportation Fuel Consumption

	FUEL CONSUMED		PERCENTAGE REDUCTION COMPARED TO 2019
	BILLION GALLONS PER YEAR	THOUSAND GALLONS PER DAY	
2019	7.6	20,838	—
2050 Plan	5.3	14,462	-30.6%

Source: SCAG 2023b

As the SCAG region gains employment and population, total VMT will increase (see discussion in Section 3.17, *Transportation*, of this 2024 PEIR). The Plan’s policies, strategies and investments to encourage carpooling, increase transit use and active transportation opportunities, and promote more walkable and mixed-use communities would help reduce per capita VMT but reductions would not be enough to offset total VMT increases for all vehicles compared to existing conditions (2019). Despite an increase in total VMT, total fuel consumption would be reduced through improved fuel economy and increased efficiency in the overall network (measured as total

hours of delay), and more alternative fuel and zero-emissions vehicle types on the road. In accordance with EO B-48-18, at least 5 million ZEV's are expected to be on California roadways by 2030. Additionally, CARB's fuel efficiency regulations have reduced diesel fuel consumption in heavy-duty trucks by 500 million gallons in California from 2010 to 2020 through improvements in tractor and trailer aerodynamics, which would reduce fuel consumption during both the construction and operation of a project (CARB 2013). Furthermore, USEPA and NHTSA Phase 2 program establishing fuel efficiency standards for medium- and heavy-duty vehicles would improve the fuel efficiency of heavy-duty vehicles (fuel consumption of tractor trailers alone is anticipated to decrease by 24 percent). The Phase 2 standards begin in model year 2021 (model year 2018 for trailers and 2021 for NHTSA's trailer standards) and culminate in standards for model year 2027 and would reduce fuel consumption during both the construction and operation of a project (USEPA 2016). However, as mentioned above, the SCAG region includes a diverse set of jurisdictions with varying levels of regulation and enforcement. It would be speculative to assume that all jurisdictions would realize consistent fuel savings across the region. Therefore, petroleum fuel use could result in wasteful, inefficient, or unnecessary energy consumption.

ENERGY AND WATER-RELATED ENERGY USE

Increasing water efficiencies are anticipated to result in a decrease in residential water use per capita in the future. However, given the increase in population of nearly 2.1 million people by 2050, overall residential and commercial water use in the region is anticipated to increase by 3 percent. While implementation of the Plan would generally support policies to reduce the wasteful, inefficient, or unnecessary energy consumption, given the size of and complexity of energy conditions in the region, variability in application and enforcement of energy rules and regulations, and potential for unforeseen circumstances to occur through the 2050 Plan horizon, it is possible that wasteful energy consumption could occur within the respective jurisdictions in the region. As such, although the Plan would generally support and facilitate implementation of energy and water related infrastructure improvements and achievement of energy efficiency goals, the potential still exists that potential projects under the Plan could result in wasteful, inefficient, or unnecessary energy consumption. Therefore, impacts would be significant requiring the consideration of mitigation measures.

As shown in **Table 3.6-5, Water Use – Residential and Commercial**, water use reductions are expected from the residential sector, which is anticipated to reduce water use over the lifetime of the Plan by approximately 13.3 percent (combined indoor and outdoor). In October 2022 SCAG adopted a Water Action Resolution (Resolution No. 22-647-3) that affirms a drought and water shortage emergency in the SCAG Region and calls on local and regional partners to join together to reduce water use; improve water conservation, reuse, and efficiency; enhance water systems' health and resilience; support climate change mitigation and adaptation efforts, and support investments in water infrastructure and conservation practices that support the region's economic and population growth and fosters planning for the Region's Housing Needs identified in Connect SoCal (SCAG 2022). The Water Action Resolution was incorporated into the Plan. Reductions in the residential sector are anticipated to result from increasing pressures to conserve water as a result of long-term climate change and anticipated reductions in available water. Plan policies would encourage reductions in water use. Most of the anticipated residential water use reductions would come from the reduction in urban landscaping water, which makes up roughly half of all urban water use (PPIC Water Policy Center 2019). Larger reductions are seen in the outdoor water use compared with the indoor water use for residential. This is aligned with potential higher density, multi-family and attached single-family development (which tends to consume less water for outdoor, landscaping uses, compared to lower density development with larger lot sizes) expected from implementation of the Plan that encourages more compact development in PDAs.

TABLE 3.6-5 Water Use – Residential and Commercial

	2019	2050 PLAN	PERCENTAGE DIFFERENCE FROM 2019
Indoor residential water use (af)	1,036,742	953,744	-8.0%
Outdoor residential water use (af)	1,024,862	834,467	-18.6%
Residential water use (af)	2,061,604	1,788,211	-13.3%
Indoor commercial water use (af)	574,083	879,852	53.3%
Outdoor commercial water use (af)	389,728	447,352	14.8%
Commercial water use (af)	963,811	1,327,204	37.7%
Total water use (af)	3,025,415	3,115,415	3.0%

As shown above, total water use in the SCAG region by 2050 is anticipated to increase by 3 percent. Indoor residential and outdoor residential are anticipated to decrease in water use; however, indoor commercial water use is anticipated to increase by 53.3 percent and outdoor commercial water use is anticipated to increase by 14.8 percent over the lifetime of the Plan. The commercial sector includes offices, hospitals, hotels, restaurants, educational facilities, and industrial land uses. The large increase in water use may be in part to the additional jobs, job types, and commercial uses that will be required for a population increase of nearly 2.1 million new residents between 2019 and 2050.

As noted above, water use is closely tied to the electricity required to transport, distribute, and treat water.¹ Water-related electricity use is expected to increase from 12,475 gigawatt-hours (GWh) to 12,960 GWh in 2050 with the Plan, which represents a 3.9 percent increase in electricity (**Table 3.6-6, Water-Related Energy Use**).

TABLE 3.6-6 Water-Related Energy Use

	2019	2050 PLAN	PERCENTAGE DIFFERENCE FROM 2019
Water-related electricity use (GWh)	12,475	12,960	3.9%

As demonstrated in the table above, the total water-related electricity use is expected to increase by 3.9 percent over the lifetime of the Plan. Based on SPM data provided (SCAG 2023a), the 2019 per capita water-electricity use is 662 kWh/person for the existing conditions. In 2050, per capita water-related electricity use is expected to be 621 kWh/person. Therefore, the per capita water-related electricity use will decrease by 41 kWh/person. As a result, water-related electricity use efficiency will increase.

As demonstrated above, fuel consumption and total building energy use are expected to decrease over the lifetime of the Plan, however total water use and water-related energy use would increase over the lifetime of the Plan. Although, water use and water-related electricity use efficiency is anticipated to decrease over the lifetime of the Plan. As stated above, the per capita building energy use efficiency is anticipated to increase by 8.2 million Btu/person.

¹ The SCAG region has several desalination projects proposed or under development within the SCAG region, and desal plants are highly energy intensive. However, such projects diversify water supply portfolios and provide for greater reliability. Therefore, if water production relies on a desalination plant in the future, the water-related energy use could increase.

SUMMARY

In summary, construction energy use is anticipated to be more efficient (and less wasteful) in the future as Tier 4 or cleaner construction equipment combined with CARB regulations for reducing fuel use in heavy-duty diesel trucks used for hauling construction materials are implemented. Additionally, the Plan will encourage compact (more efficient) land use and more efficient, less energy intensive modes of transportation (transit, bike, walk) which will likely result in a lower VMT per capita. Similarly, per capita consumption of energy is anticipated to decline, with respect to building energy use and water-related energy use. Nonetheless, given the size and complexity of energy and transportation efficiency conditions in the region, variability in application and enforcement of energy rules and regulations and transportation policies, and potential for unforeseen circumstances to occur through the 2050 Plan horizon, it is possible that individual projects under the Plan could result in wasteful energy consumption could occur within the respective jurisdictions in the region. Therefore, wasteful or inefficient use of energy could occur in the region, and this impact is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-AQ-1, SMM-GHG-1, and SMM-GHG-2.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-AQ-1, PMM-GHG-1, PMM-TRA-1, and PMM-USWS-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to wasteful, inefficient, or unnecessary consumption of energy resources, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT ENR-2 **Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.**

Significant and Unavoidable Impact – Mitigation Required

As discussed above, the Plan would result in a decrease in per capita energy use and would not generally be expected to result in energy used in an unnecessary or wasteful manner. The Plan would not result in the inefficient, wasteful, or unnecessary consumption of energy if it is consistent with existing relevant energy conservation policies. Accordingly, inconsistencies between the Plan and adopted plans and policies related to energy

conservation have not been identified. The discussion below further examines consistency with adopted plans and policies related to energy conservation.

The 1974 Warren-Alquist Act established the California Energy Resource Conservation and Development Commission, now known as CEC, and established a State policy to reduce wasteful, uneconomical and unnecessary uses of energy. Based on the data above, and explained in the conclusion below, the Plan would not result in wasteful, inefficient, or unnecessary use of energy. Therefore, the Plan is consistent with the Warren-Alquist Act policies.

Senate Bill (SB) 1078 as accelerated by SB 350, establishes a renewable portfolio standard for electricity supply, and requires that retail sellers of electricity, including investor-owned utilities and community choice aggregators, provide 33 percent of their supply from renewable sources by 2020, which California achieved. SB 100 further accelerated California's Renewable Portfolio Standard and requires retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by December 31, 2045. The Plan would not conflict with or obstruct achievement of the standards because the Plan's transportation projects promote the use and generation of renewable energy reducing the need for fossil fuel energy.

In addition, the 2017 Integrated Energy Policy Report (IEPR) includes a set of strategies to address California's future energy needs. Key topics covered in the report include electricity resource and supply plans; electricity and natural gas demand forecasts; natural gas outlooks; transportation energy demand forecasts; energy efficiency savings; integrated resource planning; a barriers study; climate adaptation and resilience; renewable gas; distributed energy resources; strategic transmission investment plans; and existing power plan reliability issues. The Plan would not conflict with these policies. Refer to Section 3.8, *Greenhouse Gas Emissions*, for a discussion of GHG emissions reductions related to the Plan.

In addition, many Plan projects promote energy efficiency as they support implementation of the 2010 Clean Air Plan transportation control measures including transportation demand management, transportation system management, commuter and public transit, rail, and bike and pedestrian programs, among others. Furthermore, with respect to transportation fuel demand, the USEPA Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards are expected to result in average fuel economy label values of 40 mpg, while the standards they replace (the SAFE rule standards) would achieve only 32 mpg in model year 2026 vehicles (USEPA 2021b). The Plan would not conflict with or obstruct implementation of the standards because the Plan's transportation projects promote a shift away from petroleum-based fueled vehicles toward the use of zero-emissions or near-zero-emissions vehicles and the expansion of the charging station network in the State, which would also further the State's goal of having at least 5 million electric cars on the road by 2030 (California Fuel Cell Partnership 2018).

Land use development is required to be consistent with applicable regulations and policies including the LA County Sustainability Plan, the LA Green New Deal, as well as Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura County General Plans. These plans encourage the use of renewable energy, energy conservation and energy efficiency techniques in all new building design, orientation and construction and support of alternative transportation and fuels. As described above, the Plan includes TDM intended to improve the efficiency and effectiveness of the transportation system, reducing fuel consumption, transit and other alternative modes of transportation, such as new pedestrian and bicycle facilities and promotes mixed use and infill development.

The Plan's growth forecasts prioritize growth in Priority Development Areas (PDAs) and minimize growth in GRRAs; new renewable energy projects are sometimes developed in sensitive environments, requiring careful study and mitigation of associated biological impacts (see Section 3.4, *Biological Resources*, in this 2024 PEIR). In addition, as PDAs densify, there is the potential for shading of existing solar panels.

While implementation of the Plan would generally support and not conflict with local energy plans or policies, given the size of and complexity of energy conditions in the region, variability in application and enforcement of energy rules and regulations and transportation policies, and potential for unforeseen circumstances to occur through the 2050 Plan horizon, it is possible that noncompliance may occur for individual projects under the Plan within the respective jurisdictions in the region. As such, although the Plan would generally support and facilitate implementation of energy and water related infrastructure improvements and achievement of energy efficiency goals, the potential still exists that implementation of individual projects as a result of the Plan could result in some inconsistencies with local energy plans and policies. Therefore, the impact related to conflict with state and local plans for renewable energy or efficiency is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM AQ-1, SMM GHG-1, SMM GHG-2, and SMM LU-1.

PROJECT-LEVEL MITIGATION MEASURES

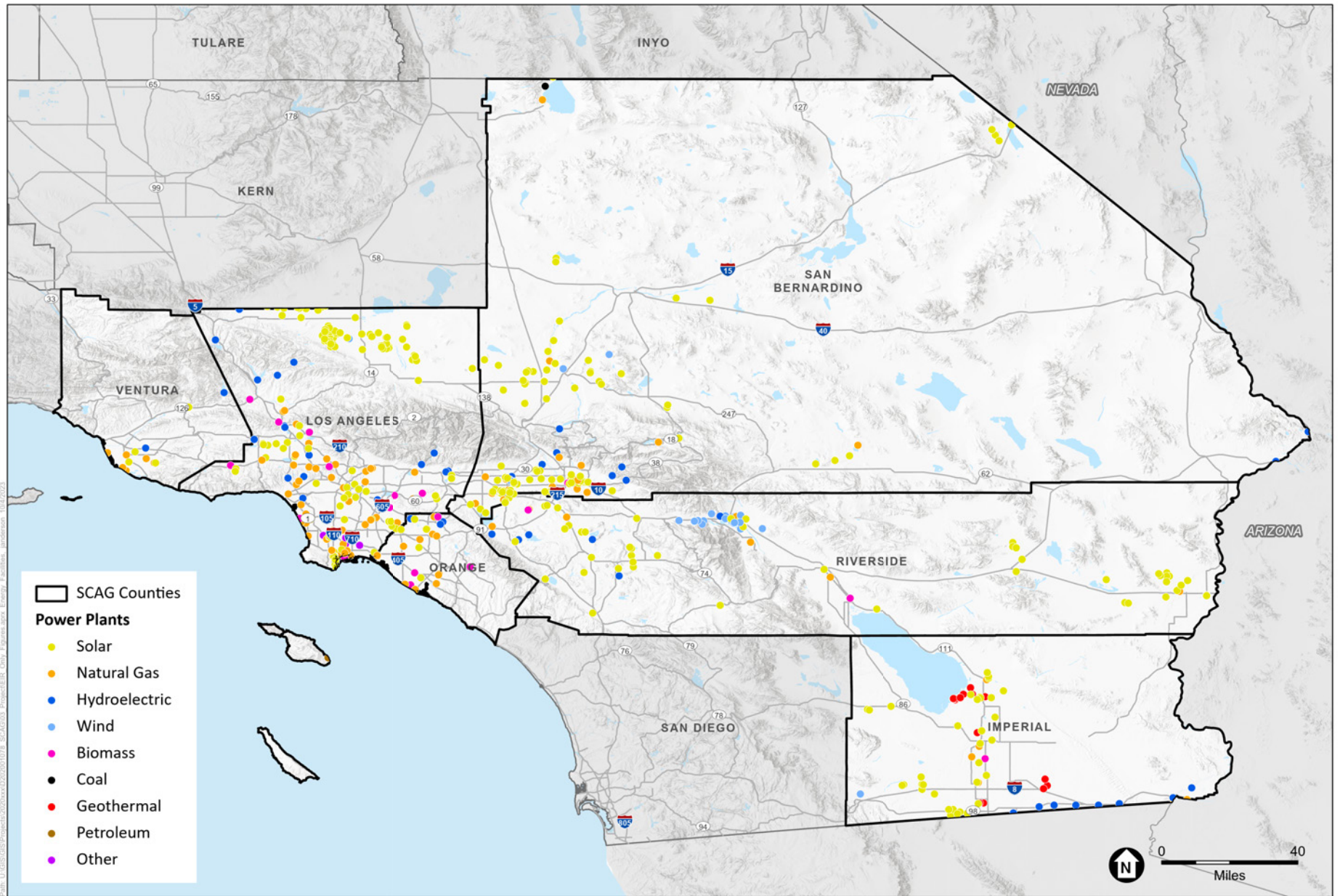
See PMM-AQ-1, PMM-GHG-1, PMM-TRA-1, and PMM-USWS-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to conflicts with or obstruction of plans for renewable energy or energy efficiency, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of a regional growth forecast and land use pattern, policies and strategies, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to energy, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.



SOURCE: Energy Information Administration, 2019

Connect SoCal 2024 PEIR

Map 3.6-1
Energy Facilities in the SCAG Region



3.6.4 SOURCES

- Adaptation Clearinghouse. 2019. State of California Executive Order N-19-19. <https://www.adaptationclearinghouse.org/resources/state-of-california-executive-order-n-19-19.html>. Accessed July 20, 2023.
- California Air Resources Board (CARB). 2003. Notice of Public Meeting to Consider Adoption of Recommendations to Reduce California's Dependence on Petroleum. <https://ww3.arb.ca.gov/regact/petdeprpt.htm>. Accessed July 20, 2023.
- CARB. 2013. Heavy-Duty (Tractor-Trailer) Greenhouse Gas Regulation. <https://ww2.arb.ca.gov/our-work/programs/ttghg>. Accessed July 20, 2023.
- CARB. 2016. *In-Use Off Road Diesel-Fueled Fleets Regulation*. https://ww2.arb.ca.gov/sites/default/files/classic/msprog/ordiesel/faq/overview_fact_sheet_dec_2010-final.pdf.
- CARB. 2017a. Clean Car Standards – Pavley, Assembly Bill 1493. January. <http://www.arb.ca.gov/cc/ccms/ccms.htm>. Accessed July 20, 2023.
- CARB. 2017b. *The 2017 Climate Change Scoping Plan Update*. January. https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf.
- CARB. 2018. Advanced Clean Car Program. <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program>. Accessed July 20, 2023.
- CARB. 2018. Green Building Standards Code. <https://ww3.arb.ca.gov/cc/greenbuildings/standards.htm>. Accessed July 20, 2023.
- CARB. 2019a. Cap-and-Trade Regulatory Guidance. <https://ww3.arb.ca.gov/cc/test/cap-and-trade-faq.htm>. Accessed July 20, 2023.
- CARB. 2019b. Low Carbon Fuel Standard. <https://ww3.arb.ca.gov/fuels/lcfs/lcfs.htm>. Accessed July 20, 2023.
- CARB. 2019c. Truck and Bus Regulation Compliance Requirement Overview. https://ww3.arb.ca.gov/msprog/onrdiesel/documents/fsregsum.pdf?_ga=2.250600582.1896330852.1574097006-1229197864.1566229390. Accessed July 20, 2023.
- CARB. 2021. *2021 Annual Evaluation of Fuel Cell Electric Vehicle Deployment and Hydrogen Fuel Station Network Development*. https://ww2.arb.ca.gov/sites/default/files/2021-09/2021_AB-8_FINAL.pdf.
- CARB. 2022. *2022 Scoping Plan For Achieving Carbon Neutrality*. July 20, 2023.
- CARB. 2023. Potential Amendments to the Diesel Engine Off-Road Emission Standards: Tier 5 Criteria Pollutants and CO2 Standards. <https://ww2.arb.ca.gov/our-work/programs/tier5/about>. Accessed August 18, 2023.
- California Building Standards Commission. 2022. California Green Building Standards Code (CALGreen Code). <https://www.dgs.ca.gov/BSC/CALGreen>. Accessed July 15, 2023.
- California Code of Regulations. Title 17, Sections 95800 to 96023.
- California Department of Motor Vehicles (California DMV). 2019. Vehicles Registered by County. <https://www.dmv.ca.gov/portal/dmv-research-reports/research-development-data-dashboards/vehicles-registered-by-county/>. Accessed July 20, 2023.
- California Energy Commission (CEC). 1974. *Warren-Alquist Act*. <https://www.energy.ca.gov/rules-and-regulations/warren-alquist-act>. Accessed July 20, 2023.

- CEC. 2012. *Comprehensive Energy Efficiency Program for Existing Buildings Scoping Report*. August. <http://www.aiacc.org/wp-content/uploads/2013/05/Comp-Ener-Efficiency-Programs-CEC-400-2012-01511.pdf>.
- CEC. 2013 Building Energy Efficiency Standards. <https://www.energy.ca.gov/title24/2013standards/>. Accessed July 20, 2023.
- CEC. 2016. *2016 Existing Buildings Energy Efficiency Plan Update*. December 2016.
- CEC. 2018. *Utility-Scale Hydroelectric Capacity by County (2018)*. <https://www.energy.ca.gov/sites/default/files/2019-07/2018%20Utility-Scale%20Hydroelectric%20Capacity.pdf>.
- CEC. 2019a. Total System Electric Generation. 2019. <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation/2019>. Accessed July 20, 2023.
- CEC. 2019b. Gas Consumption by County. <http://www.ecdms.energy.ca.gov/gasbycounty.aspx>. Accessed July 20, 2023.
- CEC. 2019c. California Gasoline Data, Facts, and Statistics. <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics>. Accessed July 20, 2023.
- CEC. 2020. *Nuclear Power Reactors in California*. [https://www.energy.ca.gov/sites/default/files/2020-03/Nuclear Power Reactors in California ada.pdf](https://www.energy.ca.gov/sites/default/files/2020-03/Nuclear%20Power%20Reactors%20in%20California%20ada.pdf).
- CEC. 2021. Total System Electric Generation, 2020. <https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation/2020>. Accessed July 20, 2023.
- CEC. 2022a. 2022 Building Energy Efficiency Standards. <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency>. Accessed July 20, 2023.
- CEC. 2022b. *CEC Adopts Historic California Offshore Wind Goals, Enough to Power Upwards of 25 Million Homes*. <https://www.energy.ca.gov/news/2022-08/cec-adopts-historic-california-offshore-wind-goals-enough-power-upwards-25>. Accessed August 15, 2023.
- California Energy Commission, California Public Utilities Commission, and California Air Resources Board (CEC, CPUC, and CARB). 2021. *2021 SB 100 Joint Agency Report: Achieving 100 Percent Clean Electricity in California: An Initial Assessment*. CEC-200-2021-001. March 2021.
- California Fuel Cell Partnership. 2018. Workshop on Governor's Executive Order B-48-18. <https://h2fcp.org/content/workshop-governor%E2%80%99s-executive-order-b-48-18>. Accessed July 20, 2023.
- California Green Buildings. 2012. Executive Order B-18-12. <https://www.green.ca.gov/buildings/resources/executiveorder/>. Accessed July 20, 2023.
- Senate Bill No. 1368. Electricity: emissions of greenhouse gases.
- Senate Bill 375. Transportation planning: travel demand models: sustainable communities strategy: environmental review.
- Senate Bill No. 350. Clean Energy and Pollution Reduction Act of 2015.
- Senate Bill 32. California Global Warming Solutions Act of 2006: emissions limit.
- Assembly Bill 197. State Air Resources Board: greenhouse gases: regulations.
- Assembly Bill No. 32. Air pollution: greenhouse gases: California Global Warming Solutions Act of 2006.
- Senate Bill No. 100. California Renewables Portfolio Standard Program: emissions of greenhouse gases.
- Assembly Bill No. 1007. Family law: parent education programs.

Assembly Bill No. 525. Energy: offshore wind generation.

California Natural Resources Agency. 2018. Final Statement of Reasons for Regulatory Action Amendments to the State CEQA Guidelines OAL. Notice File No. Z-2018-0116-12. November 2018. https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/2018_CEQA_Final_Statement_of%20Reasons_111218.pdf.

California Public Utilities Commission (CPUC). 2021. California Renewables Portfolio Standard. <https://www.cpuc.ca.gov/rps>. Accessed July 15, 2023.

CPUC. 2022. 2022 California Solar Initiative, Annual Program Assessment. June 2022. <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/csi-progress-reports/2022-csi-apa.pdf>.

CPUC. 2023. Power Safety Power Shutoffs. <https://www.cpuc.ca.gov/psps/>. Accessed July 23, 2023.

California State Motor Vehicle Pollution Control Standards. 2022. Advanced Clean Car Program; Reconsideration of a Previous Withdrawal of a Waiver of Preemption; Notice of Decision, 87 Fed. Reg. 14,332 (March 14, 2022).

City of Los Angeles. 2019. Mayor Garcetti Launches L.A.'s Green New Deal. <https://www.lamayor.org/mayor-garcetti-launches-la%E2%80%99s-green-new-deal>. Accessed July 20, 2023.

City of Riverside. 2012. Green Action Plan. https://www.riversideca.gov/utilities/greenriverside/pdf/Green_Action_Plan%202012.pdf.

Clean Technica. 2018. NRG Energy Announces 2018 Retirement of 3 Southern California Natural Gas Power Plants. <https://cleantechnica.com/2018/03/14/nrg-energy-announces-2018-retirement-of-3-southern-california-natural-gas-power-plants/>. Accessed July 20, 2023.

County of Los Angeles. Los Angeles Countywide Sustainability Plan. <https://ourcountyla.org/wp-content/uploads/2019/07/OurCounty-Final-Plan.pdf>.

Diesel Technology Forum. About Clean Diesel Construction. <https://www.dieselforum.org/about-clean-diesel/construction>. Accessed July 20, 2023.

Fed Center. 2019. EO 13834. <https://www.fedcenter.gov/programs/eo13834/>. Accessed July 20, 2023.

Federal Highway Administration (FHWA). 2018. MAP-21 – Moving Ahead for Progress in the 21st Century. <https://www.fhwa.dot.gov/map21/>. Accessed July 20, 2023.

Federal Register. 2009. Environmental Protection Agency: California State Motor Vehicle Pollution Control Standards; Notice of Decision Granting a Waiver of Clean Air Act Preemption for California's 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicles; Notice. <https://www.govinfo.gov/content/pkg/FR-2009-07-08/pdf/E9-15943.pdf>.

Public Law 95–619. National Energy Conservation Policy Act. November 9, 1978. <https://www.govinfo.gov/content/pkg/STATUTE-92/pdf/STATUTE-92-Pg3206.pdf>. Accessed July 20, 2023.

Public Law 109–58. Energy Policy Act of 2005. August 8, 2005.

Public Law 109–59. Safe, Accountable, Flexible, Efficient Transportation Equality Act: A Legacy for Users. August 10, 2005.

Public Law 110–140. Energy Independence and Security Act of 2007. December 19, 2007.

Executive Order 13693. Planning for Federal Sustainability in the Next Decade. March 19, 2015.

Los Angeles Times. 2016. Story So Far: Porter Ranch gas leak updates. <https://www.latimes.com/local/lanow/la-me-porter-ranch-gas-leak-live-htmlstory.html>. Accessed July 20, 2023.

- Office of Administrative Law. 2022. Proposed Advanced Clean Cars II (ACC II) Regulations. <https://ww2.arb.ca.gov/rulemaking/2022/advanced-clean-cars-ii>. Accessed July 20, 2023.
- Office of the Governor. 2006. Executive Order S-06-06. https://ww2.energy.ca.gov/biomass/documents/EXEC_ORDER_S-06-06.PDF.
- Office of the Governor. 2007. Executive Order S-01-07. <https://ww3.arb.ca.gov/fuels/lcfs/eos0107.pdf>.
- Office of Governor Edmund G. Brown Jr. 2015., Governor Brown Establishes Most Ambitious Greenhouse Gas Reduction Target in North America. <https://www.ca.gov/archive/gov39/2015/04/29/news18938/>. Accessed July 20, 2023.
- Public Policy Institute of California Water Policy Center (PPIC Water Policy Center). 2016. *Energy and Water*. https://www.ppic.org/content/pubs/report/R_1016AER.pdf.
- PPIC Water Policy Center. 2019. Just the Facts: Water Use in California. https://cwc.ca.gov/-/media/CWC-Website/Files/Documents/2019/06_June/June2019_Item_12_Attach_2_PPICFactSheets.pdf?la=en&hash=E233EA870DFB826F235B258177849300179E1B64.
- Southern California Association of Governments (SCAG). 2019. Final Federal Safer, Affordable, Fuel-Efficient Vehicles Rule Part I (Supplemental Report). https://scag.ca.gov/sites/main/files/file_attachments/eec_item8_rc_item10_supplemental_report.pdf?1604641275. Accessed July 20, 2023.
- SCAG. 2022. Resolution No. 22-647-3. Accessed July 20, 2023.
- Southern California Edison (SCE). 2021. Public Safety Power Shutoff: Decision Making. https://download.newsroom.edison.com/create_memory_file?f_id=60677314b3aed3396d46711f&content_verified=True. Accessed August 3, 2023.
- The Atlantic. 2018. The Car Industry Squirms, as It Gets What It Asked For. <https://www.theatlantic.com/science/archive/2018/08/car-industry-trump-epa/566738/>. Accessed July 20, 2023.
- The New York Times. 2018. California Will Require Solar Power for New Homes. May 9, 2018. <https://www.nytimes.com/2018/05/09/business/energy-environment/california-solar-power.html>. Accessed July 20, 2023.
- The Washington Post. 2019. Major automakers strike climate deal with California rebuffing Trump on proposed mileage freeze. <https://www.washingtonpost.com/climate-environment/2019/07/25/major-automakers-strike-climate-deal-with-california-rebuffing-trump-proposed-mileage-freeze/>. Accessed August 15, 2023.
- The White House President Barack Obama. 2009. Executive Order 13514 Focused on Federal Leadership in Environmental, Energy, and Economic Performance. <https://obamawhitehouse.archives.gov/the-press-office/president-obama-signs-executive-order-focused-federal-leadership-environmental-ener>. Accessed July 20, 2023.
- The White House President Barack Obama. 2011. President Obama Announces First Ever Fuel Economy Standards for Commercial Vehicles. <https://obamawhitehouse.archives.gov/blog/2011/08/09/president-obama-announces-first-ever-fuel-economy-standards-commercial-vehicles>. Accessed July 20, 2023.
- U.S. Bureau of Reclamation (Reclamation). 1978. *Public Utility Regulatory Policies Act of 1978*. <https://www.usbr.gov/power/legislation/purpa.pdf>.
- U.S. Census Bureau, 2020. QuickFacts: California. <https://www.census.gov/quickfacts/CA>. Accessed July 20, 2023.
- U.S. Department of Energy (USDOE). Undated[a]. Alternative Fuels Data Center: Key Federal Legislation. http://www.afdc.energy.gov/laws/key_legislation. Accessed July 20, 2023.

- U.S. Department of Energy. Undated[b]. Clean Cities Coalition Network. <https://cleancities.energy.gov/about/>. Accessed July 20, 2023.
- U.S. Department of Transportation (USDOT). 2019. The Fixing America's Surface Transportation Act or "FAST Act." <https://www.transportation.gov/fastact/>. Accessed July 20, 2023.
- U.S. Department of Transportation and U.S. Environmental Protection Agency (USDOT and USEPA). 2019. One National Program Rule on Federal Preemption of State Fuel Economy Standards. <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100XI4W.pdf>.
- U.S. District Court for the District Court of Columbia. 2021. *Union of Concerned Scientists, et al., v. National Highway Traffic Safety Administration, etc.*, USCA Case #19-1230 and consolidated cases.
- U.S. Energy Information Administration (USEIA). 2021. State Profile and Energy Estimates: California. <http://www.eia.gov/state/?sid=ca>. Accessed July 20, 2023.
- USEIA. 2022. California Total Gasoline Retail Sales by Refiners. <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pets&s=a103650061&f=a>. Accessed July 20, 2023.
- U.S. Environmental Protection Agency (USEPA). 2011. Regulatory Announcement: EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium- and Heavy-Duty Vehicles. Office of Transportation and Air Quality. EPA-420-F-11-031. August 2011.
- USEPA. 2016. Final Rule for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles- Phase 2. October. <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-greenhouse-gas-emissions-and-fuel-efficiency>. Accessed July 20, 2023.
- USEPA. 2018a. Federal Register/Vol. 81, No. 206/Tuesday, Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2, 2018.
- USEPA. 2018b. Regulations for Emissions from Heavy Equipment with Compression-Ignition (Diesel) Engines. <https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-emissions-heavy-equipment-compression>. Accessed July 20, 2023.
- USEPA. 2021a. *Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards*. <https://www.govinfo.gov/content/pkg/FR-2021-12-30/pdf/2021-27854.pdf>.
- USEPA. 2021b. *Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards: Regulatory Update*. EPA-420-F-21-077. December 2021. <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1013NR8.pdf>.
- U.S. Legal, Inc. 2023. Energy Policy and Conservation. <http://energylaw.uslegal.com/energy-policy-and-conservation/>. Accessed July 20, 2023.

3.7 GEOLOGY AND SOILS

This section of the 2024 PEIR describes the geological characteristics of the SCAG region, sets forth the regulatory framework that governs geology and soils, and analyzes the significance of the potential impacts that could result from implementation of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible. Impacts related to erosion and sedimentation as relates to water quality are discussed in further detail in Section 3.10, *Hydrology and Water Quality*, of this 2024 PEIR, while impacts associated with the loss of topsoil as relates to agricultural resources are addressed in Section 3.2, *Agriculture and Forestry Resources*. Impacts to archaeological/historic resources and tribal cultural resources are discussed in Section 3.5, *Cultural Resources*, and Section 3.18, *Tribal Cultural Resources*, respectively, of this 2024 PEIR.

3.7.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for geology and soils follow:

- *Alluvium*: An unconsolidated accumulation of stream deposited sediments, including sands, silts, clays, or gravels.
- *Extrusive igneous rocks*: Rocks that crystallize from molten magma on earth's surface.
- *Fault*: A fracture or fracture zone in rock along which movement has occurred.
- *Formation*: A laterally continuous rock unit with a distinctive set of characteristics that make it possible to recognize and map from one outcrop or well to another. The basic rock unit of stratigraphy.
- *Holocene*: An interval of time relating to, or denoting the present epoch, which is the second epoch in the Quaternary period. The California Geological Survey (CGS) defines the Holocene as from approximately 11,700 years ago to the present time; the U.S. Geological Survey (USGS) uses 15,000 years ago.
- *Liquefaction*: The process by which water-saturated sandy soil materials lose strength and become susceptible to failure during strong ground shaking in an earthquake. The shaking causes the pore-water pressure in the soil to increase, thus transforming the soil from a stable solid to a more liquid form.
- *Modified Mercalli Intensity (MMI) Scale*: The MMI scale assigns an intensity value based on the observed effects of ground shaking produced by an earthquake. Unlike measures of earthquake magnitude and peak ground acceleration (PGA), the Modified Mercalli Intensity Scale is qualitative in nature in that it is based on actual observed effects rather than measured values. Similar to PGA, Modified Mercalli values for an earthquake at any one place can vary depending on the earthquake's magnitude, the distance from its epicenter, the focus of its energy, and the type of geologic material. The Modified Mercalli values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X can cause moderate to significant structural damage. Because the Modified Mercalli scale is a measure of ground shaking effects, intensity values can be correlated to a range of average PGA values.
- *Moment magnitude (Mw)*: Also called moment magnitude scale, quantitative measure of an earthquake's magnitude (or relative size) using a logarithmic scale. Calculations of an earthquake's size using the moment magnitude scale are tied to an earthquake's seismic moment rather than to the amplitudes of seismic waves

recorded by seismographs. The moment magnitude scale is the only scale capable of reliably measuring the magnitudes of the largest, most destructive earthquakes (that is, greater than magnitude 8). The first logarithmic scale was developed in the 1930s by Charles Richter and became known as the Richter scale. The Richter and other similar scales are valid for a particular frequency range and type of seismic signal. The Richter magnitude scale reflects the maximum amplitude of a particular type of seismic wave. Moment magnitude provides a physically meaningful measure of the size of a faulting event (CGS 2002). Richter magnitude estimations can be generally higher than moment magnitude estimations. The discussion of earthquake magnitudes in this 2024 PEIR all refer to moment magnitude.

- *Oligocene*: An interval of time relating to, or denoting the third epoch of the Tertiary period, between the Eocene and Miocene epochs, from approximately 34 to 23 million years ago.
- *Outcrop*: A rock formation that is visible on earth's surface.
- *Paleozoic*: An interval of time relating to, or denoting the era between, the Precambrian eon and the Mesozoic era, from approximately 541 to 252 million years ago.
- *Peak ground acceleration (PGA)*: A common measure of ground motion at any particular site during an earthquake. The PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared. Unlike measures of magnitude, which provide a single measure of earthquake energy, PGA varies from place to place and is dependent on the distance from the epicenter and the character of the underlying geology (e.g., hard bedrock, soft sediments, or artificial fills).
- *Pleistocene*: An interval of time relating to, or denoting the first epoch of the Quaternary period, between the Pliocene and Holocene epochs, from approximately 2.6 million years ago to 11,700 years ago.
- *Pliocene*: An interval of time relating to, or denoting the last epoch of the Tertiary period, between the Miocene and Pleistocene epochs, from approximately 5.5 to 2.6 million years ago.
- *Plutonic igneous rocks*: Igneous rocks that have crystallized beneath the earth's surface.
- *Pore water pressure*: Refers to the pressure of groundwater held within a soil or rock, in gaps between particles (pores).
- *Quaternary*: The most recent period in geological time; includes the Pleistocene and Holocene Epochs.
- *Soil association*: A mapping unit consisting of a group of defined and taxonomic soil units occurring together in an individual and characteristic pattern over a geographic region.
- *Unique geologic feature*: An important and irreplaceable geological formation. Such features may have scientific and/or cultural values.
- *Unique paleontological resource*: A fossil or the geological unit that contains the fossil that meets one or more of the following criteria:
 - It provides information on the evolutionary relationships and developmental trends among organisms, living or extinct.
 - It provides data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein.
 - It provides data regarding the development of biological communities or interaction between plant and animal communities.
 - It demonstrates unusual or spectacular circumstances in the history of life.

- The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

REGIONAL GEOLOGIC CONDITIONS

The SCAG region extends primarily over four California geomorphic provinces: the Transverse Ranges, the Peninsular Ranges, the Colorado Desert, and the Mojave Desert (**Map 3.7-1, Geomorphic Provinces**).¹ The stratigraphic units of southwestern California, including those of the SCAG area, are separated into two large groups by a pronounced unconformity² of mid-Cretaceous age (about 100 million years ago). Below the unconformity are basement rocks composed of metamorphic and igneous crystalline rocks of Precambrian (before 540 million years ago) to early Late Cretaceous age. Above the unconformity is a thick succession of marine and non-marine sedimentary and volcanic rocks of Late Cretaceous to Recent age (Yerkes et al. 1965). These provinces are naturally defined geologic regions that display distinct landscape or landform and geology, as summarized below.

TRANSVERSE RANGES

The Transverse Ranges are an east–west trending series of steep mountain ranges and broad alluvial valleys that extends approximately 320 miles from Point Arguello in the west to the Little San Bernardino Mountains in the east. The east–west structure of the Transverse Ranges is oblique to the normal northwest trend of coastal California, hence the name “Transverse.” This geomorphic province includes Ventura County and portions of Los Angeles, San Bernardino, and Riverside Counties. It also extends offshore to include San Miguel, Santa Rosa, and Santa Cruz islands.

There is intense north–south compression squeezing the Transverse Ranges and resulting in the prominent basins and ranges found in this province, including the Ventura Basin and the San Gabriel and San Bernardino Mountains. This is one of the most rapidly rising regions on earth. Several active faults, such as the San Andreas Fault Zone, are located in the Transverse Ranges. Other faults in the province include the Santa Clara River Valley Fault, the San Gabriel Fault Zone, the Santa Cruz Island Faults, the Santa Rosa Island Faults, and the Soledad Faults. This province is one of the most geologically diverse in California, containing a wide variety of bedrock types and structures. California’s highest peaks south of the central Sierra Nevada and the only Paleozoic rocks in the coastal mountains in the United States are found here. Because of the great lithological diversity, the province is further subdivided into eight subprovinces, each displaying its own geologic signature. Broad illuviated valleys, narrow stream canyons, and prominent faults separate these subprovinces.

PENINSULAR RANGES

The Peninsular Ranges province consists of a series of ranges separated by northwest trending valleys, subparallel to faults branching from the San Andreas Fault Zone. This province is bounded on the northwest by the Transverse Ranges, on the east by the Colorado Desert, and extends south, encompassing the Los Angeles Basin and terminating 775 miles south of the United States–Mexico border.

The Peninsular Ranges includes the southern portion of Los Angeles County, the southwest corner of San Bernardino County, all of Orange County, and the San Jacinto Mountains and the Coachella Valley in the central

¹ A small sliver of the northwest corner of San Bernardino County is located in the Basin and Range province, and a small area in northern Ventura County is located in the Southern Coastal Ranges province.

² An unconformity is a buried erosional or non-depositional surface separating two rock masses or strata of different ages, indicating that sediment deposition was not continuous.

portion of Riverside County. The ranges are composed of a series of northwest-southeast trending mountains that are separated by several active faults, including the San Jacinto and Elsinore Fault Zones. The bedrock of the Peninsular Ranges contains a record of the initiation of the subduction zone that dominated the Mesozoic. The older deep marine deposits have been metamorphosed to varying degrees by Cretaceous intrusions. These intrusions, or batholith, form the resistant backbone of the ranges. Younger marine and terrestrial sediments flank off the margins due to the later uplift. The Peninsular Ranges is one of the largest geologic units in western North America. Its highest elevations are found in the San Jacinto-Santa Rosa Mountains, with San Jacinto Peak reaching 10,805 feet above mean sea level (MSL). The orientation and shape of the Peninsular Ranges is similar to the Sierra Nevada, in that the west slope is gradual and the eastern face is steep and abrupt. Drainage from the province is typically by the San Diego, San Dieguito, San Luis Rey, and Santa Margarita Rivers.

COLORADO DESERT (SALTON TROUGH)

The Colorado Desert geomorphic province (also referred to as the Salton Trough) is a depressed block between active branches of alluvium-covered San Andreas Fault with the southern extension of the Mojave Desert province in the east. Its roughly triangular shape is bounded to the east by the Chocolate Mountains, to the west by the Peninsular Ranges, and extends south into Mexico. The area is a low-lying, barren desert basin dominated by the Salton Sea. This province includes a large portion of Imperial County and a small portion of central Riverside County. The Colorado Desert is divided into two main valleys: the deep Imperial Valley to the south and the narrower and shallower Coachella Valley to the north. A good portion of both valleys lie below sea level with the lowest elevation found in the Salton Basin at 235 feet below MSL. The area is characterized by the ancient beach lines and silt deposits of extinct Lake Cahuilla. Geologic features include playas separated by sand dunes and the occurrence of seismic and a seismic subsidence due to the San Andreas Fault system.

MOJAVE DESERT

The Mojave Desert geomorphic province occupies approximately 25,000 square miles. It is a broad interior region of isolated mountain ranges separated by expanses of desert. There are two important fault trends that control topography, a prominent northwest-southeast trend and a secondary east-west trend. The Mojave province is wedged in a sharp angle between the left-lateral Garlock Fault to the north (southern boundary Sierra Nevada) and the right-lateral San Andreas Fault to the west (where it bends east from its northwest trend). The Nevada state line roughly coincides with its eastern boundary, and the San Bernardino/Riverside County line defines its southern boundary. Portions of Los Angeles and San Bernardino Counties lie within this province.

The mountain ranges in the Mojave contain a record of complex and varied geological histories going back several billion years. The oldest rocks are crystalline basement that may or may not be related to similar aged rocks in Wyoming. From about 1 billion years to 250 million years ago, the Mojave recorded passive shallow to deep ocean deposition. By the Jurassic, about 160 million years ago, the area fully shifted to recording a subduction zone with volcanism, plutonism, and rifting. As the Mesozoic gave way to the Cenozoic, the region shifted to terrestrial sedimentation, filling in faulted basins. This early part of the history is recorded in the bedrock of the mountains.

Erosional features such as broad alluvial basins that receive non-marine sediments from the adjacent uplands dominate the Mojave Desert region. Numerous playas, or ephemeral lakebeds within internal drainage basins, also characterize the region. Throughout this province, small hills—some the remnants of ancient mountainous topography—rise above the valleys that are surrounded by younger alluvial sediments. The highest elevation approaches 4,000 feet above MSL, and most valleys lie between 2,000 to 4,000 feet above MSL.

SOUTHERN COASTLINE GEOMORPHIC SUB-PROVINCE

Recently, the CGS has considered the coastline itself as a distinct geomorphic sub-province evenly divided between north and south (CGS 2015). The California coastline is another dynamic boundary zone, of varying width, where geologic forces collide. Coastal landforms include beaches, dunes, tide pools, estuaries, lagoons, steep cliffs, marine terraces, and sea stacks. Portions of the coast have been uplifted due to tectonic forces, while others have subsided. The interplay of uplift and sea level fluctuations produced numerous marine terraces all along the coast. The highest terraces can extend several miles inland to what was once the shoreline. Subsidence along with sea level rise since the end of the last Ice Age has drowned river mouths. This moved the shoreline inland. Such a dynamic setting has produced a long list of landscapes and features including accreted terranes, marine terraces, islands, sea stacks, dunes, beaches, and concretions.

The coastline can be subdivided into two sections. The northern section runs the length of the Coast Ranges province; the southern runs along the western edge of the provinces of the Transverse Ranges and the Peninsular Ranges. Along the southern section, the coastal geomorphology is superimposed on the landforms of the Transverse Ranges and Peninsular Ranges geomorphic provinces. The southern coastline trends northwestwardly from San Diego to Point Conception. Due to the orientation, the southern shores are somewhat sheltered from storms that arrive from the west and northwest. A broad continental shelf lies along the southern section. The shallow offshore shelf helps absorb wave energy by causing waves to break further from shore. Sand deposition started roughly 10,000 years ago and is relatively widespread along the southern coast, creating the state's popular beaches.

The position of the shoreline is directly related to sea level and land elevation, both of which are variable through time. Sea level was as much as 400 feet lower during the last Ice Age because so much water was trapped as ice on the glaciers that covered northern and southern latitudes. During this time the shoreline position was as much as several miles west of its current location extending toward the Channel Islands. During the Ice Ages, major rivers cut deep canyons into the continental shelf, creating submarine canyons. During the last interglacial, sea level was approximately 15 to 20 feet higher and coastal wetlands and estuaries were correspondingly much more extensive than they are today.

FAULTS AND SEISMICITY

The SCAG region is seismically active. In the past 100 years, several earthquakes of magnitude 5.0 or larger have been reported on the active San Andreas, San Jacinto, Elsinore, and Newport-Inglewood fault systems. These four fault systems are concentrated in the western portion of the SCAG region, running in a northwest to southeast direction. The San Andreas Fault lies furthest to the east, extending just above the northern border of Ventura County and the San Gabriel Mountains and southward to the Salton Sea. As a result, significant earthquake hazards exist in the region.³ Injury to people and damage to structures during earthquakes can be caused by actual surface rupture along an active fault, by ground shaking from a nearby or distant fault, or seismic-induced ground failures (e.g., liquefaction, lateral spreading, or landslides). In Southern California, the largest historic earthquake was the magnitude 7.9 Fort Tejon earthquake that occurred in 1857 (USGS 2019b). Much more frequent are smaller temblors, like the relatively moderate (but still exceedingly damaging) 1971 San Fernando and 1994 Northridge

³ It should be noted that new faults continue to reveal themselves, such as in the case of the Ridgecrest quake of 2019, and the potential seismic threats posed by these faults also continue to be reevaluated based on new geologic information and analysis.

earthquakes, both classified as magnitude 6.7 earthquakes.⁴ In July 2019, a magnitude 7.1 earthquake struck on a previously unnamed fault system near Ridgecrest in San Bernardino County. Two foreshocks of 5.4 and 6.1 preceded the larger 7.1 earthquake.

A fault is a fracture in the crust of the earth along which there has been displacement of the sides relative to one another parallel to the fracture. Most faults are the result of repeated displacements over a long period of time. Numerous active and potentially active faults have been mapped in the region (**Table 3.7-1, Characteristics of Major Faults in the SCAG Region**, and **Map 3.7-2, Alquist-Priolo Earthquake Fault Zones and Areas of Probabilistic Ground Acceleration**) (USGS 2023b; CGS 2016). The SCAG region contains lateral strike-slip faults⁵ (e.g., the San Andreas Fault Zone) and various identified and hidden blind thrust faults.⁶ A fault trace is the surface expression of a particular fault. Buried or blind thrust faults are thought to underlie much of the SCAG region. These “buried” faults do not exhibit readily identifiable traces on the earth’s surface and are typically at considerable depth within the underlying geologic formation. Although these faults typically do not offset surface deposits, they can generate substantial ground shaking. The CGS defines active faults as those that have exhibited evidence of displacement during the Holocene (11,700 years ago to present) period.⁷ Potentially active faults are defined as faults that have exhibited evidence of displacement during the Pleistocene period (11,700 years to 2.6 million years ago). Class A faults have geologic evidence that demonstrates the existence of a Quaternary fault of tectonic origin, whether the fault is exposed for mapping or inferred from liquefaction or other deformational features. Class B faults have geologic evidence that demonstrates the existence of a fault or suggests Quaternary deformation, but either (1) the fault might not extend deeply enough to be a potential source of significant earthquakes, or (2) the currently available geologic evidence is too strong to confidently assign the feature to Class C but not strong enough to assign it to Class A. Class C faults have geologic evidence that is insufficient to demonstrate (1) the existence of tectonic fault or (2) Quaternary slip or deformation associated with the feature.

TABLE 3.7-1 Characteristics of Major Faults in the SCAG Region

FAULT	COUNTIES	REGENCY	SLIP-RATE (MM/YR)	MAX. MOMENT
CLASS A FAULTS				
San Andreas	Los Angeles	Historic	24.0–34.0	7.2–7.5
	San Bernardino	Late Quaternary		
	Riverside	Latest Quaternary		
	Imperial			

⁴ The human and economic damage caused by earthquakes tends to increase with time, as more and more people and property come to occupy more and more of the land, thus cumulatively increasing the exposure of human habitation to seismic hazard. The 1994 Northridge earthquake, though hardly the most severe experienced by Southern California, was deemed the most expensive, in terms of its economic cost and its damage to human property. The California Office of Emergency Services claimed a \$15 billion total damage estimate.

⁵ For strike-slip faults, the fault plane is essentially or close to vertical, and the relative slip is lateral along the fault plane. Strike-slip faults are right lateral or left lateral, depending on whether the block on the opposite side of the fault from an observer has moved to the right or left.

⁶ A thrust fault is a type of reverse fault (i.e., a dip-slip fault where the hanging wall moves upwards relative to the footwall) that has a fault plane dip of 45 degrees or less. If the fault plane terminates before it reaches the Earth’s surface, it is referred to as a blind thrust fault.

⁷ The U.S. Geological Survey (USGS) uses 15,000 years ago to present.

FAULT	COUNTIES	REGENCY	SLIP-RATE (MM/YR)	MAX. MOMENT
San Jacinto–Imperial Fault Zone	San Bernardino	Historic	4.0–20.0	6.6–7.2
	Riverside	Holocene		
	Imperial	Late Quaternary Latest Quaternary		
Elsinore Fault Zone	Los Angeles	Historic	2.5–5.0	6.8–7.1
	Orange	Holocene		
	Riverside	Late Quaternary		
	Imperial	Latest Quaternary		
	San Bernardino			
CLASS B FAULTS				
Elsinore and San Jacinto Fault Zones (Non A Faults)				
Brawley Seismic Zone	Imperial	Historic	25.0	6.4
Chino	San Bernardino	Latest Quaternary	1.0	6.7
	Riverside			
Elmore Ranch	Imperial		1.0	6.6
Garlock Fault Zones				
Garlock – west	Los Angeles	Latest Quaternary	6.0	7.3
	San Bernardino			
Garlock – east	San Bernardino	Late Quaternary	7.0	7.5
		Latest Quaternary		
Owl Lake	San Bernardino	Latest Quaternary	2.0	6.5
Transverse – Ranges and Los Angeles Basin				
Clamshell-Sawpit	Los Angeles		0.5	6.5
Cucamonga	San Bernardino		5.0	6.9
Hollywood	Los Angeles	Late Quaternary	1.0	6.4
		Latest Quaternary		
Holser	Los Angeles	Late Quaternary	0.4	6.5
	Ventura			
Malibu Coast	Los Angeles	Late Quaternary	0.3	6.7
	Ventura	Latest Quaternary		
Mission Ridge – Arroyo Parida – Santa Ana	Ventura	Late Quaternary	0.4	7.2
		Latest Quaternary		
Newport-Inglewood	Los Angeles	Historic	1.0	7.1
	Orange	Late Quaternary		
		Latest Quaternary		
Oak Ridge	Ventura	Holocene	4.0	7.0
		Late Quaternary		
		Latest Quaternary		
Palos Verdes	Los Angeles	Late Quaternary	3.0	7.3
		Latest Quaternary		

FAULT	COUNTIES	RECENCY	SLIP-RATE (MM/YR)	MAX. MOMENT
Raymond	Los Angeles	Late Quaternary Latest Quaternary	1.5	6.5
Red Mountain	Ventura	Late Quaternary Latest Quaternary	2.0	7.0
San Cayetano	Ventura	Late Quaternary Latest Quaternary	6.0	7.0
San Gabriel	Ventura Los Angeles San Bernardino	Holocene Late Quaternary Latest Quaternary	1.0	7.2
San Jose	Los Angeles	Late Quaternary	0.5	6.4
Santa Monica	Los Angeles	Late Quaternary Latest Quaternary	1.0	6.6
Santa Ynez (East)	Ventura	Late Quaternary	2.0	7.1
Santa Susana	Ventura Los Angeles	Historic Late Quaternary	5.0	6.7
Sierra Madre	Ventura Los Angeles San Bernardino	Holocene Historic Late Quaternary Latest Quaternary	2.0	7.2
Simi-Santa Rosa	Ventura Los Angeles	Late Quaternary Latest Quaternary	1.0	7.0
Ventura-Pitas Point	Ventura	Latest Quaternary	1.0	7.0
Verdugo	Los Angeles	Late Quaternary Latest Quaternary	0.5	6.9
Los Angeles Blind Thrusts				
Upper Elysian Park	Los Angeles	Quaternary	1.3	6.4
Northridge	Ventura Los Angeles	Historic	1.5	7.0
Puente Hills blind thrust	Los Angeles Orange	Historic Quaternary	0.7	7.1
San Joaquin Hills	Orange	Latest Quaternary	0.5	6.6
Transverse – Ranges and Mojave				
Blackwater	San Bernardino	Latest Quaternary Undifferentiated Quaternary	0.6	7.1
Burnt Mountain	San Bernardino Riverside	Historic Latest Quaternary	0.6	6.5
Calico-Hidalgo	San Bernardino	Historic Latest Quaternary Undifferentiated Quaternary	0.6	7.3

FAULT	COUNTIES	REGENCY	SLIP-RATE (MM/YR)	MAX. MOMENT
Cleghorn	San Bernardino	Late Quaternary Undifferentiated Quaternary	3.0	6.5
Eureka Peak	San Bernardino Riverside	Historic Latest Quaternary	0.6	6.4
Gravel Hills – Harper Lake	San Bernardino		0.6	7.1
Helendale – S. Lockhart	San Bernardino	Late Quaternary Latest Quaternary	0.6	7.3
Johnson Valley (Northern)	San Bernardino	Historic Latest Quaternary	0.6	6.7
Lenwood – Lockhart – Old Woman Springs	San Bernardino	Historic Late Quaternary Latest Quaternary	0.6	7.5
North Frontal Fault Zone (Western)	San Bernardino	Late Quaternary Latest Quaternary	1.0	7.2
North Frontal Fault Zone (Eastern)	San Bernardino	Latest Quaternary	0.5	6.7
Pinto Mountain	San Bernardino	Late Quaternary Latest Quaternary	2.5	7.2
Pisgah – Bullion Mountain – Mesquite Lake	San Bernardino	Historic Late Quaternary Latest Quaternary	0.6	7.3
S. Emerson – Copper Mountain	San Bernardino	Latest Quaternary	0.6	7.0

Sources: Southern California Probabilistic Seismic Hazard Assessment Maps (PSHA) 2023
USGS 2023b
CDMG and USGS 1996

Table Notes:

Recency of fault movement: Refers to the time period when the fault is believed to have last moved. The age is expressed in terms of the Geologic Time Scale. Generally, the older the activity on a fault, the less likely it is that the fault will produce an earthquake in the near future. For assessing earthquake hazard, usually only faults active in the Late Quaternary or more recently are considered. These include the following three non-overlapping time periods:

Historic: Refers to the period for which written records are available (approximately the past 150 years).

Latest Quaternary: Refers to a period of time between the present and 15,000 years before present. Faults of this age are commonly considered active.

Late Quaternary: Refers to the time period between the present and approximately 130,000 years before the present.

Where no recency data are given, no determination has been made.

The *Maximum Moment Magnitude* is an estimate of the size of a characteristic earthquake capable of occurring on a particular fault. Moment magnitude is related to the physical size of a fault rupture and movement across a fault.

SEISMIC HAZARDS

Movements on the previously identified faults would likely cause future earthquakes in the SCAG region. Earthquakes can originate in areas where potential seismic energy has built up along a fault over time but has not yet been released in the form of an earthquake. The Working Group on California Earthquake Probabilities (WGCEP), comprising USGS, CGS, and the Southern California Earthquake Center, evaluates the probability of one or more earthquakes of moment magnitude 6.7 or higher occurring in the state of California over the next 30 years (WGCEP 2015). It is estimated that the Southern California region has a 93 percent chance of experiencing an

earthquake of 6.7 or higher over the next 30 years; among the various active faults in the region, the San Andreas, San Jacinto, and Elsinore Faults are the most likely to cause such an event.

The four major hazards generally associated with earthquakes are surface fault rupture (ground displacement), seismic ground shaking, and seismic-induced ground failures (e.g., liquefaction and lateral spreading, settlement, and landslides). A discussion of these types of seismic hazards is provided below.

SURFACE FAULT RUPTURE

The surface expression of earthquake fault rupture typically occurs in the immediate vicinity of the originating fault. The magnitude and nature of the rupture may vary across different faults, or even along different segments of the same fault. Rupture of the surface during earthquake events is generally limited to the narrow strip of land immediately adjacent to the fault on which the event is occurring. Surface ruptures associated with the 1992 Landers earthquake in San Bernardino County extended for a length of 50 miles, with displacements varying from 1 inch to 20 feet (CGS 2022b).

The Seismic Hazards Mapping Act requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults, and to issue appropriate maps (see Section 3.7.2, *Regulatory Framework*, for fault and seismic laws). Numerous active and potentially active earthquake faults are mapped throughout the SCAG region (Map 3.7-2). Detailed maps are distributed to all affected cities, counties, and state agencies for their use in planning new or renewed construction. Local agencies must regulate most development projects within the zones, including all land divisions and most structures intended for human habitation. Fault surface rupture almost always follows preexisting faults, which are zones of weakness. Rupture may occur suddenly during an earthquake, or slowly in the form of fault creep. Sudden displacements are more damaging to structures because they are accompanied by ground shaking. Fault creep is the slow rupture of the earth's crust. Not all earthquakes result in surface rupture (e.g., the 1994 Northridge Earthquake, Southern California Earthquake Data Center 2023). Potentially active faults have demonstrated movement within Pleistocene period (approximately 2.6 million years ago to 11,700 years ago). According to the California Division of Mines and Geology (CDMG), active and potentially active faults must be considered as potential sources of fault rupture (CDMG and USGS 1996).

SEISMIC GROUND SHAKING

Seismic ground shaking may affect areas hundreds of miles distant from the earthquake's epicenter. Historic earthquakes have caused strong ground shaking and damage in many areas of the SCAG region. The composition of underlying soils in areas located relatively distant from faults can intensify ground shaking. Areas that are underlain by bedrock tend to experience less ground shaking than those underlain by unconsolidated sediments such as artificial fill.

Earthquakes on the various and potentially active fault systems are expected to produce a wide range of ground shaking intensities in the SCAG region. The PGAs of 0.15g to 0.35g (corresponds to strong shaking on the MMI scale) and greater than 0.35 g (very strong to very violent on the MMI scale) are shown on Map 3.7-2. The estimated maximum moment magnitudes represent characteristic earthquakes on particular faults (Table 3.7-1). While the magnitude is a measure of the energy released in an earthquake, intensity is a measure of the ground shaking effects at a particular location. Shaking intensity and PGAs can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and characteristics of geologic media. Generally, intensities are highest at the fault and decrease with distance from the fault.

LIQUEFACTION AND LATERAL SPREADING

Liquefaction is the rapid loss of shear strength experienced in saturated, predominantly granular soils below the groundwater level during strong earthquake ground shaking and occurs due to an increase in pore water pressure. Liquefaction-induced lateral spreading is defined as the finite, lateral displacement of gently sloping ground as a result of pore-pressure buildup or liquefaction in a shallow underlying deposit during an earthquake (Virginia Polytechnic Institute and State University [VT] 2013). The occurrence of this phenomenon is dependent on many complex factors, including the intensity and duration of ground shaking, particle-size distribution, and density of the soil.

The potential damaging effects of liquefaction include differential settlement, loss of ground support for foundations, ground cracking, heaving, and cracking of structure slabs due to sand boiling, and buckling of deep foundations due to ground settlement. Dynamic settlement (i.e., pronounced consolidation and settlement from ground shaking) may also occur in loose, dry sands above the water table, resulting in settlement of and possible damage to overlying structures. In general, a relatively high potential for liquefaction exists in loose, sandy soils that are within 50 feet of the ground surface and are saturated (below the groundwater table). Lateral spreading can move blocks of soil, placing strain on levees and roads that can lead to ground failure.

Liquefaction potential is a function of the potential level of ground shaking at a given location and depends on the geologic material at that location. Structural failure often occurs as sediments liquefy and cannot support structures that are built on them. Areas susceptible to liquefaction with the SCAG area are shown on **Map 3.7-3, Areas of Potential Liquefaction**. Alluvial valleys and coastal regions are particularly susceptible to liquefaction. These areas can include but are not limited to flood plains and former wetlands such as Marina Del Rey, Playa Del Rey, areas near the Los Angeles River, Santa Monica Bay and Alamitos Bay in Los Angeles County, areas in the vicinity the Santa Clara River, and Calleguas Creek outlets to the ocean in Ventura County. Additionally, there are areas in northern Los Angeles County that are susceptible to liquefaction as a result of existing geological conditions. Unconsolidated alluvial deposits in desert region deposits are rarely saturated because of the depth to the water table and are thus less susceptible to liquefaction than unconsolidated alluvium adjacent to stream channels.

EARTHQUAKE-INDUCED SETTLEMENT

Settlement or densification of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid rearrangement, compaction, and settling of subsurface materials, particularly loose, uncompacted, and variable sandy sediments. Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different rates). Areas are susceptible to differential settlement if underlain by compressible sediments. Densification typically occurs in old fills and in soils that, if saturated, would be susceptible to liquefaction.

Within the SCAG region, artificial fills, unconsolidated alluvial sediments, slope washes, and areas with improperly engineered construction-fills typically underlie areas susceptible to earthquake-induced settlement. The July 2019 M7.1 Ridgecrest Earthquake and its preceding foreshocks as large as M6.4 were felt across much of Southern California and into parts of Arizona, Nevada, and the San Francisco Bay Area (USGS 2019a). The M7.1 mainshock was the strongest earthquake to occur in the state in nearly 20 years. Although mobile homes, chimneys, and gas lines suffered damage, no major settlement or landslide incidents were reported as a result of this earthquake.

SEISMICALLY INDUCED LANDSLIDES

Strong ground shaking during earthquake events can generate landslides and slumps in uplands or coastal regions near the causative fault. Seismically induced land sliding has typically been found to occur within 75 miles of the epicenter of a magnitude 6.5 (or larger) earthquake. Seismically induced landslides would be most likely to occur in areas that have previously experienced landslides or slumps, in areas of steep slopes, or in saturated hillside areas. Portions of the SCAG region are susceptible to seismically induced land sliding because of the abundance of active faults in the region and the existing landslide hazards (**Map 3.7-4, Areas of Potential Landslides**). Specifically, areas with high susceptibility to earthquake-induced landslides are concentrated along mountain ranges in the SCAG region: Santa Ana Mountains, San Gabriel Mountains, Santa Susanna Mountains, Santa Monica Mountains, Sulphur Mountain, San Jacinto Mountains, and the San Bernardino Mountains.

SOILS AND GEOLOGIC MATERIALS

Soils within the SCAG region are classified by distinguishing characteristics and are arranged within soil associations. Soils throughout the region differ in origin, composition, and slope development. Individual soil characteristics are important in determining the suitability of the soil for agricultural use or urbanized development. The formation of surficial soil depends on the topography, climate, biology, local vegetation, and the material on which the soil profile is developed. Each soil type may have properties that could limit its uses and represent a development hazard. These limitations are listed and discussed below. **Map 3.7-5, General Soil Types**, shows the general location of soil types contained within the SCAG region (NRCS 2022).

EROSION

Erosion is the physical detachment and movement of soil materials through natural processes or human activities. Soil erosion is a natural ongoing process that erodes, transports, and displaces soil particles through a transport mechanism such as flowing water or wind. In addition, erosion results from man-made activity when soil coverings are stripped leaving the underlying soil exposed to the elements. The determination of soil erosion potential is a complex process generally applied to site specific areas using the soil erodibility K factor index (NRCS 2023). The K factor combines the detachability of soil, runoff potential of the soil, and transportability of the sediment eroded from the soil into one measure for soil erodibility. The K factor is just one element of the Revised Universal Soil Loss Equation (RUSLE), which is used by government agencies to make erosion predictions for regulatory and conservation planning uses.

Determining areas of potential erosion is made more complex due to the substantial geomorphic diversity in the SCAG region. Generally, there is a high potential for erosion in mountainous areas and areas along the margins of mountainous areas, where there is a high intensity of rainfall, the soils are considered erosive, and such soils are present on slopes. Clay soils typically have low erodibility because the soil particles are resistant to detachment. Soils having a high silt content are the most erosive as the particles are easily detached, tend to crust, and produce high rates of runoff.

SOIL

Three soil factors are strongly associated with soil erosion potential: texture, compactness, and structure. Of these, texture plays the most dominant role. Intermediate textured soil types, such as silt, tend to be most erodible, whereas clay and particles coarser than sand are more resistant to erosion. Slopes influence the rate and amount of runoff, and in turn influence erosion. Loose texture and steep slopes primarily result in high wind erosion

potential in soils. Data on soil erodibility (K factor) indicate there are areas within the SCAG region with both moderate (K factor 0.25–0.45) and high susceptibility (K factor > 0.45) of erosion, as shown on **Map 3.7-6, Soils with Moderate to High Erosion Potential**. In Ventura County, most of the Santa Monica Mountains and Topatopa Mountains are characterized by soils that are moderately susceptible to erosion. In Los Angeles County, most soils within the urbanized areas south of the San Gabriel Mountains are moderately susceptible to erosion. These soils continue southeast into Orange County where almost all of the land area is covered by soils moderately susceptible to erosion. In San Bernardino County, the majority of soils have low susceptibility to erosion, however several pockets of moderately erodible soils exist throughout the county, particularly surrounding the Ivanpah and Piute Mountains and Lanfair and Ivanpah Valleys; one small area of highly erodible soil exists in the northeast corner of the county within the Mesquite Valley. Riverside County also features both moderately and highly susceptible erodible soils that are mainly concentrated in the western portion of the county immediately adjacent to the east and west of the Lakeview Mountains. Finally, Imperial County is covered by moderately erodible soils on its west side, surrounding the Salton Sea and extending south.

Erosion caused by wind is most severe in arid regions where sandy or loamy sediments are not covered by vegetation and exposed to severe wind conditions, such as the eastern portions of San Bernardino, Riverside, and Imperial Counties. Human intervention can accelerate the natural erosion process. For instance, typical consequences of development increase erosion potential due to the removal of vegetative cover and reduction of overall permeable area. These activities can lead to increased water runoff rates and concentrated flows that have greater potential to erode exposed soils. The effects of excessive erosion range from nuisance problems that require additional maintenance, such as increased siltation in storm drains, to instances of more severe damage where water courses are down-cut and gullies develop. These processes can eventually undermine adjacent structures or topography. Human activities that disturb soils in arid regions also increase wind erosion potential. Many of the desert areas in the SCAG region are susceptible to blowing sand, a severe form of wind erosion that damages property and accumulates soil on roadways. The majority of the soils in the SCAG region exhibit moderate to high erosion potential, which can be compounded by development.

COASTAL

Coastal erosion is a natural process that is typically the most visible during storm events. Beach sand is replenished by sediment loads in rivers and gentler waves after storm events or during summer months. Erosion rates of one inch per year are considered moderate. However, depending on the severity and duration of storm events and the degree of human intervention with natural coastline or riverine processes, coastal erosion can proceed at considerable rates, resulting in rapid visible coastline recession. In areas of extreme coastal erosion, such as the cities of Rancho Palos Verdes and Malibu, slopes have been undercut by waves during storm events, causing slope failure and resulting in property damage and risks to human health and safety. Within the SCAG region, the coastal portions of Los Angeles, Orange, and Ventura Counties are susceptible to wave erosion hazards.

The Pacific Ocean borders the Peninsular Ranges province and the Transverse Ranges Province on the west. Nearly all the sea cliffs along the coast display some sign of coastal erosion. Coastal retreat is attributable to various processes, including undercutting from wave action, weathering and erosion of rocks and cliffs, emergence of groundwater at the cliff face, rain-wash, and land sliding. Additionally, these naturally occurring forces can be assisted by human activity such as coastal road construction, channelization of surface water flows, or development on marine terraces.

EXPANSIVE SOILS

Expansive soils possess a “shrink-swell” behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may result over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Typically, soils that exhibit expansive characteristics are those within five feet of the surface. The effects of expansive soils could damage foundations of aboveground structures, paved roads and streets, and concrete slabs. Expansion and contraction of soils, depending on the season and the amount of surface water infiltration, could exert enough pressure on structures to result in cracking, settlement, and uplift. Locations of expansive soils are site-specific and can generally be remedied through standard engineering practices.

SETTLEMENT

Loose, soft soil material comprised of sand, silt and clay, if not properly engineered, has the potential to settle after a building is placed on the surface. Settlement of the loose soils generally occurs slowly but over time can amount to more than most structures can tolerate. Building settlement could lead to structural damage such as cracked foundations and misaligned or cracked walls and windows. Settlement problems are site-specific and can generally be remedied through standard engineering applications.

LAND SUBSIDENCE

Land subsidence is caused by a variety of agricultural, municipal, or mining practices that contribute to the loss of support materials within a geologic formation. Agricultural practices can cause oxidation and subsequent compaction and settlement of organic clay soils or hydro-compaction allowing land elevations to lower or sink. Agricultural and municipal practices can result in the overdraft of a groundwater aquifer thereby causing aquifer settlement. Groundwater overdraft occurs when groundwater pumping from a subsurface water-bearing zone (aquifer) exceeds the rate of aquifer replenishment. The extraction of mineral or oil resources can also result in subsidence from removal of supporting layers in the geologic formation. Substantial subsidence occurs in the SCAG region due to groundwater extraction and subsequent lowering of the groundwater surface, typically beneath a confining clay stratum. Land subsidence can also result from persistent and prolonged drought. Prolonged drought can also exacerbate the above causes of subsidence as in the case of groundwater extraction for agricultural purposes. As there is less surface water available, more groundwater is extracted, thus increasing the potential for subsidence (Borchers and Carpenter 2014).

The impact of subsidence could include lowering of the land surfaces, increased potential for flooding, potential disturbance or damage to transportation infrastructure, buried pipelines and associated structures, and damage to structures designed with minimal tolerance for settlement. Historic occurrences of land subsidence due to groundwater extraction are reported in the SCAG region within Antelope Valley, Coachella Valley, and the Mojave River Basin Area. With groundwater level declines as high as 300 feet in some areas, subsidence has caused permanent damage to many of these landscapes.

LANDSLIDES

Landslides are the rapid downslope movement of a mass of material that moves as a unit and carries with it all the loose material above bedrock. Landslides occur more frequently on steep slopes or after periods of heavy rain due to the additional weight of water and its lubricating qualities. The material in the slope and external processes

such as climate, topography, slope geometry, and human activity can render a slope unstable and eventually initiate slope movements and failures. Changes in slope material such as improperly engineered fill slopes can alter water movement and lead to chemical and physical changes within the slope. Unfavorable fracture or joint orientation and density may develop as a rock material responds to reduced weight or strain relief, resulting in a decreased ability of the rock material to resist movement. Removing the lower portion (the toe) decreases or eliminates the support that opposes lateral motion in a slope. This can occur by man-made activity such as excavations for road-cuts located along a hillside. Oversteepening a slope by removing material can also reduce its lateral support. Placement of buildings on slopes can increase the amount of stress that is applied to a potential failure surface. Shaking during an earthquake may lead materials in a slope to lose some cohesion, cause liquefaction, or change pore water pressures. Landslide-susceptible areas within the SCAG region are those with low-strength soil material on hilly topography; for example, the Portuguese Bend and Point Fermin areas of the Palos Verdes Peninsula, and the Blackhawk slide area on the north slope of the San Bernardino Mountains. Factors that decrease resistance to movement in a slope include pore-water pressure, material changes, and structure. Areas susceptible to landslides are shown on Map 3.7-4.

SOILS CAPABLE OF SUPPORTING SEPTIC TANKS OR ALTERNATIVE WASTEWATER DISPOSAL SYSTEMS

The California State Water Resources Control Board has specific guidelines and requirements with regard to soil suitability for septic tanks and alternative wastewater disposal systems in their publication 3.2C-Construction Practices – Onsite Wastewater Treatment Systems (OWTS) (SWRCB 2018). Soils with poorly or excessively drained soils are generally not suitable for septic tanks or alternative wastewater disposal systems. Onsite wastewater disposal systems are required to incorporate native soil knowledge into system design to prevent groundwater contamination and ensure long-term performance. Most often, a percolation test is performed to assess the infiltration rate and soil texture, both of which determine the site suitability for a wastewater disposal system. Since site suitability is determined by conducting on-site testing; suitability in the SCAG region would be determined on a project-by-project basis according to all applicable local, regional, and state requirements.

PALEONTOLOGICAL SETTING

Paleontological resources are critical for understanding how our planet and its intrinsic ecosystems have changed over time. By studying the past, we not only develop a fuller picture of our history but also gain information to help guide models about future changes. The geological record preserved in the SCAG region showcases significant changes in the biosphere of Southern California.

The SCAG region covers many different geological units and depositional environments of the past several billion years. To best contextualize the paleontological resources, this section is focused on those geological formations within the SCAG region most likely to host significant fossils. Various agencies and professional societies define significance differently, but the commonality is to protect resources that are rare (such as vertebrate fossils), record unique conditions (such as Pleistocene playa lakes), or are in jeopardy of loss through looting or destructive activities. To best manage resources, the standard practice is to initially define the significance based on published, mappable geological formations. The higher the mapping resolution, the more accurate the evaluation. Specific projects can then be quickly assessed and, if necessary, be assigned higher-detail scrutiny.

For this section, the recommendations of the Society of Vertebrate Paleontology (SVP) are followed as they are the industry standard for non-federal projects. The SVP (2010) defines fossils as being over 5,000 years in age, while the U.S. Bureau of Land Management generally considers fossils to be Pleistocene in age or older (over 11,700 years in age; BLM 2016). Therefore, sediments younger than middle or early Holocene are too young to

preserve fossil resources and have low paleontological sensitivity. Other types of geologic units with low sensitivity are moderately metamorphosed rocks, as the heat and pressure associated with metamorphism is likely to destroy fossils. High grade metamorphic rocks, as well as igneous rocks, have no paleontological sensitivity.

The discussion presented below groups formations by age and environment using the large-scale compilation geologic map of California (CGS 2010). Then, specific formations known for hosting significant paleontological resources are described in detail.

CENOZOIC MARINE DEPOSITS

Cenozoic marine deposits date from the Paleocene to the Pliocene and were deposited on the ancient seafloor. These geologic formations are well known for being highly fossiliferous in southern California and may preserve a wide variety of marine fauna: invertebrates such as mollusks, crustaceans, echinoderms, and others; marine vertebrates such as shark and other fish, whales, seals, sea lions, and others; and even terrestrial vertebrates such as horse, camel, bison, and others that washed out to sea and where buried in the near-shore marine deposits.

These deposits are particularly common at the surface in the Transverse Ranges in Ventura County, where Eocene and Miocene units are prevalent, coastal Orange County, central Imperial County as scattered outcrops around the Salton Sea, and central Los Angeles County. In the subsurface, these deposits are likely to be encountered underlying the younger surficial alluvium across large parts of the Los Angeles and San Bernardino basins.

Some of these units with the highest paleontological sensitivity (SVP high potential) are discussed below:

- **Shallow Marine Deposits.** Shallow marine deposits such as the San Pedro Sand and the Palos Verdes Sand have a strong record of preserving Pleistocene-aged marine and terrestrial fossils. The San Pedro Sand has yielded a diverse fauna of nearshore marine invertebrates such as crabs, snails, bivalves, gastropods, and echinoids and vertebrates such as sharks, bony fish, amphibians, reptiles, birds, whales, antelopes, mammoth, dire wolves, rodents, and bison. These units are common along coastal southern California, including Ventura, Los Angeles, and Orange Counties in the SCAG region. Many abundant fossil localities have been collected from excavations in San Pedro around the Port of Los Angeles, where the setting is very similar to that of the program area, with artificial fill covering old marine deposits. These deposits have yielded thousands of specimens of marine invertebrates that are significant for reconstructing changes in shallow marine ecosystems as the climate has changed since the Pleistocene (SWCA 2019).
- **Fernando Formation.** The Fernando Formation dates to the Pliocene and consists of marine siltstone, sandstone, pebbly sandstone, and conglomerate. The Fernando formation is common in the Transverse Ranges, particularly in Los Angeles County, where it is found extensively in the subsurface throughout the Los Angeles Basin. The lower part of the Fernando Formation consists of a pebble-cobble conglomerate in a sandstone matrix that fines upwards (i.e., particles get smaller when moving upwards toward the surface) into a coarse sandstone and then a silty sandstone. The upper Fernando Formation consists of coarse-grained sandstone with conglomerate lenses. The Fernando Formation has an extensive record of preserving scientifically significant fossils, including invertebrates such as mollusks, echinoids, and bryozoans, fish, squid, and a number of unidentified megafossils (SWCA 2019). A collection search of the holdings of the University of California Museum of Paleontology (UCMP) returned over 50 invertebrate fossils from the Fernando Formation.
- **Bouse Formation.** The Bouse Formation spans the early Pliocene to the late Miocene and has been interpreted to represent either a marine estuarine or lacustrine depositional environment. The Bouse Formation is found in the Mojave Desert Geomorphic Province and consists of calcareous clay, silt, and sand.

Abundant common invertebrate fossils such as gastropods, ostracods, barnacles, and foraminifera, as well as fish and plants are known from the Bouse Formation (SWCA 2019).

- **Puente Formation.** The Puente Formation, often synonymous with the Modelo Formation, consists of marine sandstone, siltstone, and shale that dates from the early Pliocene to the Miocene. The Puente Formation has a history of preserving both invertebrate and vertebrate marine fossils, such as cephalopods, crustaceans, fishes, and other marine and terrestrial vertebrates (Santos et al. 2016). The Puente Formation is common in the Peninsular Ranges and Transverse Ranges provinces (SWCA 2019).
- **Monterey Formation.** The Monterey Formation records the filling of a deep basin formed by tectonism along the California margin and constitutes one of the major elements of California geology and can range up to several thousands of feet thick. The Monterey ranges in age from the Pliocene to middle Miocene and can be found throughout the basins of the Peninsular Ranges and Transverse Ranges provinces in the subsurface. The Monterey Formation has yielded a diverse fauna consisting of some mollusks and common fish skeletons, and remains of larger marine macrofauna such as whales and the giant extinct *Desmostylus*, as well as birds, crocodiles and rare land organisms such as horse and land plants (SWCA 2019). The UCMP collections hold at least 459 vertebrates from the Monterey Formation including birds, cartilaginous fish, bony fish, mammals, and reptiles. There are at least 18 different genera of marine mammals alone, attesting to the richness of the formation.
- **Vaqueros Formation.** The Vaqueros Formation consists of predominately limey sandstone interbedded with siltstone and shale deposited in an offshore basin. The Vaqueros Formation is common in the Peninsular Ranges and Transverse Ranges provinces and dates from the early Miocene to the late Eocene. Common fossils in the Vaqueros Formation include marine invertebrates such as barnacles, ostreids, pectinids and marine ichnofossils, as well as terrestrial vertebrates and marine megafauna (SWCA 2019).

CENOZOIC TERRESTRIAL DEPOSITS

Cenozoic terrestrial deposits date from the Paleocene to the Pleistocene and were deposited in terrestrial environments as alluvial sediments, fluvial sediments, and lacustrine deposits. These geologic formations are well known for being highly fossiliferous in southern California and may preserve a wide variety of terrestrial fauna: invertebrates such as mollusks; plants; and abundant terrestrial vertebrates such as horse, camel, bison, and others.

These deposits are particularly common at the surface in the Mojave and Colorado Desert provinces but are found scattered across the entire SCAG region. Some of these units with the highest paleontological sensitivity (United States Bureau of Land Management [BLM] Potential Fossil Yield Classification System class 4 or 5, SVP high potential) are discussed below:

- **Pleistocene Alluvium.** Pleistocene Alluvium consists of sand, silt, and gravel deposited in terrestrial environments as the result of erosion of surrounding highlands and dates to the Pleistocene (11,700 to 2.6 million years ago). Pleistocene sediments have a rich fossil history in southern California (SWCA 2019).

The most common Pleistocene terrestrial mammal fossils include the bones of mammoth, horse, bison, camel, and small mammals, but other taxa, including lion, cheetah, wolf, antelope, peccary, mastodon, capybara, and giant ground sloth, have been reported, as well as birds, amphibians, and reptiles such as frogs, salamanders, snakes, and turtles. In addition to illuminating the striking differences between Southern California in the Pleistocene and today, this abundant fossil record has been vital in studies of extinction, ecology, and climate change (SWCA 2019).

An excellent example of the striking abundance and diversity of these Pleistocene sediments comes from Riverside County, just south of San Bernardino County, where nearly 100,000 identifiable fossil specimens representing 105 vertebrate, invertebrate, and plant species were collected from more than 2,000 individual localities during the construction of the dam at Diamond Valley Lake and are now housed at the Western Science Center in Hemet, California. This site represents the second largest late Pleistocene fossil assemblage known from the American Southwest after the La Brea Tar Pits in Los Angeles. Other Ice Age fossils have been found throughout the inland valleys and the Mojave Desert (SWCA 2019).

- **Manix Formation.** The Manix Formation consists of around 40 meters of lacustrine, fluvial, and alluvial sediments deposited in and around the Middle to late Pleistocene Lake Manix (Reheis et al. 2012). This formation occurs to the east of Barstow in the Mojave Desert. The lacustrine and fluvial deposits in this formation have yielded a diverse fauna, preserving invertebrates such as mollusks and ostracods as well as aquatic and terrestrial vertebrates such as fish, birds, and numerous Ice Age mammals (Leatham and Kunath 2012). The UCMP collections attest to the diversity of species specimens associated with this formation with over 16 distinctive birds, 237 mammals, nine fish, and 7 reptiles, out of 316 vertebrate fossils.
- **San Timoteo Formation.** The San Timoteo Formation dates from the Pleistocene to the Pliocene and consists of stream-deposited alluvial sediments that are made up of detritus eroded from the San Bernardino Mountains in the Mojave Desert and southeastern Transverse Ranges provinces. A number of significant fossil deposits have been discovered in the San Timoteo and the UCMP collections contain over 21 different genera of mammals as well as reptiles. The construction of the El Casco Substation in San Timoteo Canyon between September 2009 and January 2011 produced numerous fossils, including riparian and aquatic plants, insects, slugs and snails, fish, tortoise, lizards, snakes, small mammals, birds, a giant camel, a llama, two ground sloths, and two different types of saber tooth cats. The Shutt Ranch fauna is a collection of hundreds of significant fossils belonging to 37 species of small mammals, as well as larger macrofauna such as sloth, camel, deer, horse, and others, found in the San Timoteo beds. The scientific literature records a rich fossil history from this unit that includes fossils of more than 30 plant taxa and over forty animal taxa, including camels, deer, sloth, elephants, bears, rabbits, and rodents. This fauna has been the subject of study for almost 100 years (SWCA 2019). Most recently, a unique sabertoothed cat was recovered that provided key information on the diet of the group (Dooley et al. 2012)
- **Avawatz Formation.** The Avawatz Formation consists of four members: conglomerate; siltstone and sandstone; breccias; and sandstone, siltstone, and tuff deposited in alluvial fans, floodplains, and lakes, spanning a period of around 40 million years, during the late Miocene. The Avawatz Formation is found in the Avawatz Mountains in the Mojave Desert province. The Avawatz preserves a typical Miocene mammalian fauna of early ancestors of horses and camels, as well as abundant rodents and some reptiles. In addition, the Avawatz Formation is known for preserving exceptional fossil trackways from dozens of different types of animals, including birds, camels, and cats (e.g., Reynolds and Milner, 2012). Trackways are significant fossil resources, and provide valuable information on not only foot morphology, but also how an animal moved and potentially whether it was part of a herd. The Raymond M. Alf Museum in Claremont, California, has more than 100 fossil trackways collected from the Avawatz Formation in San Bernardino County (SWCA 2019).
- **Topanga Group.** The Topanga Group of formations is predominantly composed of sandstone but also some siltstone, breccia, and shale. Formations within the Topanga Group are common across the basins of the Peninsular Ranges and Transverse Ranges provinces. The Topanga Group is interpreted to represent wave-dominated coastal deposits grading into river-dominated deltaic deposits and fluvial deposits in the upper parts of the formation. The formations within the Topanga Group date to the middle Miocene, around 20 to 16 million years ago. Fossils from these formations include numerous invertebrate and vertebrate remains

from both marine and terrestrial settings, including sharks, bony fishes, birds, whales, dolphins, and land mammals (SWCA 2019).

- **Barstow Formation.** The Barstow Formation is composed of fluvial and lacustrine sediments interbedded with air-fall tuff beds deposited in lakes from around 14.8 to 19.3 million years ago. This formation crops out across the Mojave Desert province. The fossil mammal fauna of the Barstow is so abundant it has been used to define a biostratigraphic portion of the middle Miocene called the Barstovian North American Land Mammal Age. The University of California, Berkeley, conducted extensive excavations of the mammal fossils shortly after they were first discovered in the Mud Hills. The most common fossils from the Barstow Formation include early ancestors of horses, antelope, and camels, as well as small mammals such as mice and rabbits, with birds, fish, invertebrates, reptiles, and early ancestors of canines and elephants less common but well represented. In addition to the vertebrate fauna, an extensive record of exceptionally preserved small organisms, such as insects and arthropods, are known from the Barstow Formation. These fossils have been extensively studied and reported on in the scientific literature, leading to a better understanding of the early evolution of many modern animals ranging from horses and camels to insects, as well as paleoecology (SWCA 2019). Additionally, the Barstow Formation has been used as a key deposit for understanding taphonomy, or the process of fossilization (Loughney and Badgley 2020). The vast collections hosted at the UCMP attest to the richness and diversity of the Barstow Formation. Over 4,000 specimens are in the online database, representing amphibians, eight distinct genera of birds, 75 different genera of mammals, and seven different reptiles.

3.7.2 REGULATORY FRAMEWORK

Regulations associated with geology, soils, and associated seismic and geologic hazards are summarized below. In addition, regulations applicable to paleontology and fossil resources are also addressed. Regulations related to erosion and sedimentation, which are primarily related to water quality issues, are provided in Section 3.10, *Hydrology and Water Quality*, of this 2024 PEIR.

FEDERAL

EARTHQUAKE HAZARDS REDUCTION ACT

The Earthquake Hazards Reduction Act of 1977 (Public Law 95-124) established the National Earthquake Hazards Reduction Program which is coordinated through the Federal Emergency Management Agency (FEMA), the USGS, the National Science Foundation, and the National Institute of Standards and Technology. The purpose of the Program is to establish measures for earthquake hazards reduction and promote the adoption of earthquake hazards reduction measures by federal, state, and local governments; national standards and model code organizations; architects and engineers; building owners; and others with a role in planning and constructing buildings, structures, and lifelines through (1) grants, contracts, cooperative agreements, and technical assistance; (2) development of standards, guidelines, and voluntary consensus codes for earthquake hazards reduction for buildings, structures, and lifelines; and (3) development and maintenance of a repository of information, including technical data, on seismic risk and hazards reduction. The Program is intended to improve the understanding of earthquakes and their effects on communities, buildings, structures, and lifelines through interdisciplinary research that involves engineering, natural sciences, and social, economic, and decisions sciences.

DISASTER MITIGATION ACT (2000)

The federal Disaster Mitigation Act (DMA) (Public Law 106-390) provides the legal basis for FEMA mitigation planning requirements for state, local, and Tribal governments as a condition of mitigation grant assistance. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act by repealing the previous mitigation planning provisions and replacing them with a new set of requirements that emphasize the need for state, local, and Indian Tribal entities to closely coordinate mitigation planning and implementation efforts. The requirement for a state mitigation plan is continued as a condition of disaster assistance, adding incentives for increased coordination and integration of mitigation activities at the state level through the establishment of requirements for two different levels of state plans. DMA 2000 also established a new requirement for local mitigation plans and authorized up to seven percent of Hazard Mitigation Grand Program funds available to a state for development of state, local, and Indian Tribal mitigation plans.

CLEAN WATER ACT SECTION 402

Section 402 of the Clean Water Act (33 U.S. Code Section 1251 et seq.) establishes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) program. The NPDES program controls water pollution by regulating point sources that discharge pollutants, including rock, sand, dirt, and agricultural, industrial, and municipal waste, into waters of the United States. USEPA has delegated to the State Water Resources Control Board the authority for the NPDES program in California, which is implemented by the State's nine Regional Water Quality Control Boards. Under the NPDES Phase II Rule, construction activity disturbing one or more acres must obtain coverage under the State's General Permit for Discharges of Storm Water Associated with Construction Activity (General Construction Permit). As described further in Section 3.10, *Hydrology and Water Quality*, the Construction General Permit requires that applicants develop and implement a stormwater pollution prevention plan (SWPPP), which specifies best management practices (BMP) that reduce pollution in stormwater discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards and perform inspections and maintenance of all BMPs.

U.S. GEOLOGICAL SURVEY LANDSLIDE HAZARD PROGRAM

The USGS Landslide Hazard Program provides information on landslide hazards including information on current landslides, landslide reporting, real time monitoring of landslide areas, mapping of landslides through the National Landslide Hazards Map, local landslide information, landslide education, and research.

PALEONTOLOGICAL RESOURCES PRESERVATION ACT

The primary legislation pertaining to fossils from the National Park Service and other federal lands is the Paleontological Resources Preservation Act of 2009 (PRPA) (16 U.S.C. § 470aaa 1-11), which was enacted on March 30, 2009, within the Omnibus Public Land Management Act of 2009 (NPS 2023). PRPA directs the Department of Agriculture (U.S. Forest Service) and the Department of the Interior (National Park Service, Bureau of Land Management, Bureau of Reclamation, and Fish and Wildlife Service) to manage and protect paleontological resources on Federal land using scientific principles and expertise. The Secretary shall develop appropriate plans for inventory, monitoring, and the scientific and educational use of paleontological resources, in accordance with applicable agency laws, regulations, and policies. These plans shall emphasize interagency coordination and collaborative efforts where possible with non-Federal partners, the scientific community, and the general public.

Additionally, the federal land managing agencies were directed to establish a program to increase public awareness about the significance of paleontological resources. The National Park Service established National Fossil Day to address this provision in the law and to promote the scientific and educational values of fossils. The National Fossil Day partnership consists of more than 380 partners across the U.S. including museums, science and teacher organizations, universities, libraries, agencies, fossil sites, amateur fossil groups and others interested in fossils.

PRPA provides specific mandates for administering paleontological resource research and collecting permits and the curation of fossil specimens in museum collections. The law also includes provisions for both criminal and civil penalties associated with paleontological resource crimes on federal lands.

ANTIQUITIES ACT

In 1906, the Antiquities Act (54 U.S.C. § 320301–320303) was enacted to help protect any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States (NPS 2023). The act further authorizes the President of the United States to declare national monuments by public proclamation of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federal lands. The Antiquities Act was used to proclaim several national monuments based upon significant paleontological resources including Petrified Forest National Park, Dinosaur National Monument, Fossil Cycad National Monument (now abolished), and most recently Waco Mammoth National Monument.

STATE

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT (ALQUIST-PRIOLO ACT)

The Alquist-Priolo Act (California Code of Regulations, Section 3603(f)) provides policies and criteria to assist cities, counties, and state agencies to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The Alquist-Priolo Act was intended to provide the citizens of the state with increased safety and to minimize the loss of life during and immediately following earthquakes by facilitating seismic retrofitting to strengthen buildings, including historical buildings, against ground shaking.

In accordance with the Act, the State Geologist has established regulatory zones—called earthquake fault zones—around the surface traces of active faults and has published maps illustrating these zones. The Act requires that special geologic studies be conducted to locate and assess any active fault traces in and around known active fault areas prior to development of structures for human occupancy. This state law was a direct result of the 1971 San Fernando Earthquake, which was associated with extensive surface fault ruptures that damaged numerous homes, commercial buildings, and other structures. The Act's main purpose is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. This Act addresses only the hazard of surface fault rupture and is not directed toward other earthquake hazards. Because many active faults are complex and consist of more than one branch that may experience ground surface rupture, earthquake fault zones extend approximately 200 to 500 feet on either side of the mapped fault trace.

SEISMIC HAZARDS MAPPING ACT

The Seismic Hazards Mapping Act of 1990 (Public Resources Code [PRC] Chapter 7.8, Sections 2690–2699.6) addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. The purpose of the Act is to protect the public from the effects of strong ground shaking, liquefaction, landslides,

or other ground failure, and other hazards caused by earthquakes. The program and actions mandated by the Seismic Hazards Mapping Act closely resemble those of the Alquist-Priolo Act.

This act requires the State Geologist to delineate various seismic hazard zones, and cities, counties, and other local permitting agencies to regulate certain development projects within these zones. For projects that would locate structures for human occupancy within designated Zones of Required Investigation, the Seismic Hazards Mapping Act requires project applicants to perform a site-specific geotechnical investigation to identify the potential site-specific seismic hazards and corrective measures, as appropriate, prior to receiving building permits. The CGS Guidelines for Evaluating and Mitigating Seismic Hazards (Special Publication 117A) provides guidance for evaluating and mitigating seismic hazards.

CALIFORNIA BUILDING CODE

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress to facilities (entering and exiting), and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under State law, all building standards must be contained in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2022 edition of the CBC is based on the International Building Code (IBC) published by the International Code Council, which replaced the Uniform Building Code (UBC) in 2000. The code is updated triennially, and the 2022 edition of the CBC was published by the California Building Standards Commission on July 1, 2022, and took effect starting January 1, 2023. The 2022 CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standard ASCE/SEI 7-22, Minimum Design Loads for Buildings and Other Structures, provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (such as wind loads) for inclusion into building codes. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake. Consequently, structures should be able to (1) resist minor earthquakes without damage; (2) resist moderate earthquakes without structural damage but with some nonstructural damage; and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a structure designed in accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a seismic design category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site; SDC ranges from A (very small seismic vulnerability) to E/F (very high seismic vulnerability and near a major fault). Seismic design specifications are determined according to the SDC in accordance with CBC Chapter 16. CBC Chapter 18 covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (Section 1806), as well as foundations

(Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

Requirements for geotechnical investigations are included in Appendix J, CBC Section J104, Engineered Grading Requirements. As outlined in Section J104, applications for a grading permit are required to be accompanied by plans, specifications, and supporting data consisting of a soils engineering report and engineering geology report. Additional requirements for subdivisions requiring tentative and final maps and for other specified types of structures are in California Health and Safety Code Sections 17953 to 17955 and in 2013 CBC Section 1802. Testing of samples from subsurface investigations is required, such as from borings or test pits. Studies must be done as needed to evaluate slope stability, soil strength, position and adequacy of load-bearing soils, the effect of moisture variation on load-bearing capacity, compressibility, liquefaction, differential settlement, and expansiveness.

CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) REGULATIONS

Caltrans' jurisdiction includes rights-of-way (ROWs) of state and interstate routes within California. Any work within the ROW of a federal or state transportation corridor is subject to Caltrans' regulations governing allowable actions and modifications to the ROW. Caltrans issues permits to encroach on land within their jurisdiction to ensure encroachment is compatible with the primary uses of the State Highway System, to ensure safety, and to protect the state's investment in the highway facility. The encroachment permit requirement applies to persons, corporations, cities, counties, utilities, and other government agencies. A permit is required for specific activities including opening or excavating a state highway for any purpose, constructing, or maintaining road approaches or connections, grading within rights-of-way on any state highway, or planting or tampering with vegetation growing along any state highway. The encroachment permit application requirements relating to geology, seismicity and soils include information on road cuts, excavation size, engineering and grading cross-sections, hydraulic calculations, and mineral resources approved under Surface Mining and Reclamation Act of 1975 (SMARA).

CALTRANS SEISMIC DESIGN CRITERIA

Caltrans Seismic Design Criteria was initiated through the recognition that past earthquakes in California have shown the vulnerability of some older structures, designed with non-ductile design standards to earthquake-induced force and deformations. As a result, Caltrans initiated an extensive seismic retrofit program to strengthen the state's inventory of bridges to ensure satisfactory performance during anticipated future earthquakes. Caltrans has funded an extensive research program as well as developed design procedures that have furthered the state of practice of earthquake bridge engineering. The Seismic Design Criteria are an encyclopedia of new and currently practiced seismic design and analysis methodologies for the design of new bridges in California. The Seismic Design Criteria adopts a performance-based approach specifying minimum levels of structural system performance, component performance, analysis, and design practices for ordinary standard bridges. Bridges with non-standard features or operational requirements above and beyond the ordinary standard bridge may require a greater degree of attention than specified by the Seismic Design Criteria.

SOUTHERN CALIFORNIA CATASTROPHIC EARTHQUAKE PREPAREDNESS PLAN

The Southern California Catastrophic Earthquake Preparedness Plan, based on the California Geological Survey and USGS's ShakeOut Scenario of 2008, was released in 2010 and examines the initial impacts, inventories resources, cares for those wounded and homeless, and develops a long-term recovery process. The process of Long-Term Regional Recovery (LTRR) provides a mechanism for coordinating federal support to state, tribal, regional, and local governments, nongovernmental organizations (NGO), and the private sector to enable recovery from long-term consequences of extraordinary disasters. The LTRR process accomplishes this by identifying and facilitating the availability and use of recovery funding sources and providing technical assistance (such as impact analysis) for recovery and recovery planning support. "Long term" refers to the need to reestablish a healthy, functioning region that would sustain itself over time. Long-term recovery is not debris removal and restoration of utilities, which are considered immediate or short-term recovery actions. The LTRR's three main focus areas are housing, infrastructure (including transportation), and economic development.

PUBLIC RESOURCES CODE SECTION 5097.5

PRC Section 5097.5 states that "no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historic feature situated on public lands, except with the express permission of the public agency having jurisdiction over the lands."

LOCAL

COUNTY AND CITY GENERAL PLANS

A safety element is required in county and city general plans for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, slope instability leading to mudslides and landslides, subsidence, liquefaction, and other seismic hazards identified in PRC Division 2, and other geologic hazards known to the legislative body. The safety element shall include mapping of known seismic and other geologic hazards (Government Code Section 65302(g)). Table 3.7-1 and Map 3.7-2 above show the potentially active faults in the SCAG region. As part of the safety element, county and city governments typically identify goals, objectives, and implementing actions to minimize the loss of life, property damage, and disruption of goods and services from man-made and natural disasters including floods, fires, non-seismic geologic hazards, and earthquakes. County and City governments may provide policies and develop ordinances to ensure acceptable protection of people and structures from risks associated with these hazards. Ordinances may include those addressing unreinforced masonry construction, erosion, or grading.

3.7.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to geology and soils if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - (i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
 - (ii) Strong seismic ground shaking.
 - (iii) Seismic-related ground failure, including liquefaction.
 - (iv) Landslides.
- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soil creating substantial direct or indirect risks to life or property.⁸
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis for geology and soils considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

The environmental analysis presented in this section evaluates the potential impacts of Connect SoCal 2024 implementation related to geology, soils, and paleontological resources. The potential for hazards to people and property from geology and soils conditions, as well as impacts to paleontological resources, was evaluated in accordance with Appendix G of the 2023 State California Environmental Quality Act (CEQA) Guidelines. Geology, soils, and paleontological resources impacts within the SCAG region were evaluated at the programmatic level of detail, in relation to the general plans of the six counties and the 191 cities within the SCAG region and is based

⁸ The CBC no longer includes a Table 18-1-B. Instead, Section 1803.5.3 of the CBC describes the criteria for analyzing expansive soils.

on a review of the results of the review of literature and database research (geologic, seismic, soils, and paleontological resources reports and maps).

GEOLOGY AND SOILS

The methodology for determining the significance of potential risk to people and property in relation to hazards posed by geology and soils compares the existing (2023) conditions to the future 2050 conditions under the Plan, as required by CEQA Guidelines Section 15126.2(a).

Transportation and land use projects resulting from policies and strategies envisioned in Connect SoCal 2024 would be regulated by the various laws, regulations, and policies summarized above in Section 3.7.2, *Regulatory Framework*. Compliance by projects with applicable federal, state, and local laws and regulations is assumed in this analysis, and local and state agencies would be expected to continue to enforce applicable requirements.

After considering the implementation of the Plan described in Chapter 2, *Project Description*, and compliance with the regulatory requirements, the environmental analysis below identifies if the significance thresholds have the potential to be exceeded and, therefore, whether a significant impact could occur. For those impacts considered to be significant, mitigation measures are proposed to the extent feasible to reduce the significance of identified impacts.

In compliance with existing regulations, the structural elements of transportation and land use projects resulting from policies and strategies envisioned in the Plan would undergo appropriate design-level geotechnical evaluations prior to final design and construction. Implementing the regulatory requirements in the CBC, Caltrans requirements, and city or county ordinances and ensuring that all buildings and structures constructed in compliance with the law is the responsibility of the project engineers and building officials. The geotechnical engineer⁹ for each project, as a registered professional with the State of California, is required to comply with the CBC, Caltrans requirements, and local codes while applying standard engineering practice and the appropriate standard of care for the particular region in California, which, in the case of the Plan, would be the counties and cities within the SCAG region. The California Professional Engineers Act (Building and Professions Code Sections 6700-6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provides the basis for regulating and enforcing engineering practice in California. The local building officials are responsible for inspections and ensuring CBC, Caltrans requirements, and local code compliance prior to approval of the building permit, as well as inspections during and after construction to confirm implementation of associated requirements.

With regard to transportation and development projects resulting from policies and strategies in Connect SoCal 2024, given the uncertainties regarding the nature and specific locations of future development projects, impacts associated with geologic conditions and associated hazards are evaluated qualitatively based on the potential intersection of project footprints with areas having known geologic hazards taking into consideration the applicable regulations that address such hazardous conditions.

Note that in 2015, the California Supreme Court in *California Building Industry Association v. Bay Area Air Quality Management District (CBIA v. BAAQMD)* (2015) 62 Cal.4th 369, held that CEQA generally does not require a lead agency to consider the impacts of existing environmental conditions on the future residents or users of a project. There are two exceptions to this rule: First, “[W]hen a proposed project risks exacerbating those environmental

⁹ A geotechnical engineer (GE) specializes in structural behavior of soil and rocks. GEs conduct soil investigations, determine soil and rock characteristics, provide input to structural engineers, and provide recommendations to address problematic soils.

hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users.” (Id. at p. 377.) Second, “[S]pecial CEQA requirements apply to certain airport, school, and housing construction projects. In such situations, CEQA requires agencies to evaluate a project site's environmental conditions regardless of whether the project risks exacerbating existing conditions.” (Id. at p. 378.) In the area of housing, these special statutes limit “the availability of CEQA exemptions where future residents or users of certain housing development projects may be harmed by existing conditions.” (Id. at p. 391.)

If a project risks exacerbating preexisting environmental hazards or conditions, the lead agency is required to analyze the impact of that exacerbated condition on the environment, which may include future residents and users within the project area. While transportation and land use projects under the Plan would not generally exacerbate existing environmental hazards related to geological and soil conditions, consistent with past practice, information is presented on geologic hazards at the regional level.

PALEONTOLOGICAL RESOURCES

With regard to evaluation of paleontological resources impacts, various agencies and professional societies define significance of fossil deposits differently, but the commonality is (1) to protect resources that are rare (such as vertebrate fossils) or are in jeopardy of loss through looting or destructive activities, and (2) to record unique conditions (such as Pleistocene playa lakes). To best manage resources, the standard practice is to initially define the significance based on published, mappable geological formations. The higher the mapping resolution, the more accurate the evaluation. Specific projects can then be quickly assessed and, if necessary, be assigned higher-detail scrutiny.

For this section, the recommendations of SVP are followed as they are the industry standard for non-federal projects. The SVP (2010) defines fossils as being over 5,000 years in age, while the BLM (2016) generally considers fossils to be Pleistocene in age or older (11,700 years in age). Therefore, sediments younger than middle or early Holocene are too young to preserve fossil resources and have low paleontological sensitivity. Other types of geologic units with low sensitivity are moderately metamorphosed rocks, as the heat and pressure associated with metamorphism is likely to destroy fossils. High grade metamorphic rocks, as well as igneous rocks, have no paleontological sensitivity. For the purposes of analysis of potential impacts, similar to geology and soils impacts, the transportation projects and land use projects resulting from policies and strategies envisioned in Connect SoCal 2024 were evaluated based on their general locations relative to paleontologically sensitive geologic formations in order to determine the potential for such projects to result in adverse impacts to (i.e., damage to or the destruction of) fossil resources during Plan implementation.

GEOLOGY AND SOILS AND PALEONTOLOGICAL RESOURCES

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies, some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan. See CEQA Guidelines Section 15126.4(a)(1)(B). As discussed in Section 3.0, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified that can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT GEO-1 Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving (i) rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42; (ii) strong seismic ground shaking; (iii) seismic-related ground failure, including liquefaction; (iv) landslides.

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan would result in projects exposed to both direct and indirect effects of seismic activities compared to existing conditions. Connect SoCal 2024 identifies new transit and rail routes, and the expansion of highway routes and other facilities, all of which would facilitate growth and associated development projects in the region. The Plan also aims to concentrate growth in specific areas by encouraging land use development within existing urban centers, walkable mixed-use communities, transit-oriented development, and other areas well-served by transit such as Transit Priority Areas (TPA), Neighborhood Mobility Areas (NMA), Livable Corridors, and other Priority Development Areas (PDAs). Projects implemented under the Plan are anticipated to be subject to seismic events to some degree over the life of projects because the Southern California region is seismically active. Projects implemented as a result of Connect SoCal 2024 generally would not be expected to exacerbate seismic conditions in the region but may increase the number of people exposed to seismic-related hazards.

Seismic events can damage transportation infrastructure and land use development through surface rupture, ground shaking, liquefaction, and landslides. As listed in Table 3.7-1, numerous active faults are known to exist in the SCAG region that could potentially generate seismic events capable of significantly affecting existing structures as well as future projects implemented consistent with the Plan. Also, as described in Section 3.7.1, *Environmental Setting*, it is expected there are unknown faults (e.g., blind thrust faults) that could also significantly damage transportation infrastructure or the built environment, including future projects implemented under Connect SoCal 2024. The Alquist-Priolo Earthquake Fault Zoning Act prohibits the location of structures for human occupancy across active faults. Local jurisdictions require a surface fault rupture hazard investigation for any development project that would be located within an Alquist-Priolo Earthquake Fault Zone. This is to ensure that proposed development would not be located astride an active fault. Given compliance with applicable requirements of the Alquist-Priolo Earthquake Fault Zoning Act and related building codes, no habitable structures associated with anticipated land use projects under the Plan would be constructed along, and therefore would not be subject to fault rupture from, known active faults. Further, transportation projects that traverse an Alquist-Priolo Earthquake Fault Zone, or that are located within 1,000 feet of an unzoned fault (not located in an Alquist-Priolo Earthquake Fault Zone) that is Holocene (up to 11,000 years) or younger in age, would be subject to fault rupture screening and, if warranted, a Surface Fault Rupture Displacement Hazard Analysis (Caltrans 2022). Based on the results of the analysis for a given facility (bridges, tunnels, buried reinforced concrete boxes [RCB], or buildings), improvements would normally be designed to accommodate anticipated displacements if a seismic event were to occur, such that substantial risks to life or property would be minimized.

The Plan contains projects that could be located in areas susceptible to seismic shaking and seismic-induced ground failures (i.e., landslide, liquefaction, and lateral spreading). Indirect impacts could also result in additional

delays and breaks in service while repairs are made. The potential for such projects to be significantly affected by liquefaction would be higher in areas exhibiting shallow groundwater levels and unconsolidated soils such as fill material, some alluvial soils, and coastal sands.

Potential hazards associated with seismic shaking and seismic-induced ground failures (i.e., liquefaction, lateral spreading, landslides) would generally be addressed through site-specific geotechnical studies required by local jurisdictions in accordance with standard industry practices and state-provided guidance, such as the CBC, which addresses all seismic hazards, and CGS Special Publication 117A, which specifically address liquefaction.

Furthermore, the Plan itself would neither cause nor exacerbate existing geologic hazards, including the likelihood of fault rupture, because projects implemented under the Plan are not expected to include the injection or extraction of oil or groundwater, which could trigger movement along a fault.

Some transportation projects under the Plan would be located in proximity to known active faults, and further, increases in population would also result in additional people being located near known active faults. Potential direct impacts from surface rupture and severe ground shaking could cause damage to transportation infrastructure, including overpasses and underground structures. Indirect impacts from seismic events could damage ancillary transportation facilities such as port facilities, traffic control equipment, and train stations. With regard to land use development, seismic activity can cause damage to existing structures due to substandard construction. Increased density resulting from Plan could also increase the number of people and structures exposed to potential fault rupture at a given location. For example, if a fault were to rupture adjacent to an urban center more people would be affected than if fault rupture were to occur in a remote area of the region with few people (as was the case with the Ridgecrest earthquake). Strength of a particular earthquake and proximity to the fault would also be factors in how many people are affected by an earthquake. Further, as noted above, earthquakes can occur within previously undetected fault zones. For example, and as discussed in Section 3.7.1, *Environmental Setting*, the July 2019 Ridgecrest earthquakes occurred within previously undetected fault zones and caused an excess of \$100 million in damages. A substantial earthquake along the San Andreas Fault Zone would have the potential to cause extensive fatalities, financial damages, and displacement of large numbers of people.

As required by California law, any new development would be subject to the seismic design criteria of the CBC, Caltrans requirements, and city or county building codes, which require that all improvements be constructed to withstand anticipated ground shaking and seismic-induced ground failures from regional fault sources. Each development project would typically be required to obtain approval of a site-specific geotechnical report prior to the issuance of individual grading permits; applicants for all development projects would be required to retain a licensed geotechnical engineer to design new structures to withstand probable seismically induced ground shaking. Adherence to the applicable CBC requirements and city codes would ensure that majority of projects developed under the Plan would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking or seismic-induced ground failures. New or seismically retrofitted structures designed with current state of the art engineering knowledge and compliance with local or state building codes (California Building Code, Uniform Building Code) also reduce potential damage to structures and minimize the seismic impacts to the public under these circumstances.

Although compliance with existing building codes and other regulations would address most geologic hazards associated with surface fault rupture, seismic ground shaking, ground failure, liquefaction, and landslides, given the size and geologic diversity of the region and associated uncertainties regarding the nature and location of future development, as well as uncertainty regarding enforcement of regulations, it is possible that some projects

could exacerbate existing geologic conditions thus resulting in a significant impact. As such, impacts are considered significant and mitigation is required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GEN-1.

PROJECT-LEVEL MITIGATION MEASURES

PMM-GEO-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to minimize the potential for adverse effects associated with surface fault rupture, seismic ground shaking, seismic-related ground failure, liquefaction, and landslides for projects located on sites with unusual geologic conditions, the following measures shall be considered:

- Use interim precautionary steps during construction to maintain ground surface and slope stability;
- Incorporate design and structural features that exceed the requirements of the applicable building code(s) as appropriate; and
- Utilize innovative design techniques for buildings and other structural elements located on sites with unique geologic conditions to ensure that projects do not exacerbate risks associated with existing conditions.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to earthquake fault rupture, strong seismic ground shaking, seismic-related ground failure including liquefaction, and landslides, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT GEO-2 Result in substantial soil erosion or the loss of topsoil.

Significant and Unavoidable Impact – Mitigation Required

Implementation of Connect SoCal 2024, particularly construction projects involving large-scale ground disturbance such as grade separation projects, mixed flow lane projects, and rail projects may result in significant impacts from soil erosion or the loss of topsoil. In addition, although the anticipated regional development pattern that directs more growth into PDAs including existing urban areas, walkable mixed-use communities, and areas well-served by transit such as TPAs, NMAs, and livable corridors, would generally be expected to have a lower

potential to result in substantial soil erosion given the urbanized nature of such areas, it is possible that some projects could result in soil erosion or loss of topsoil constituting a potentially significant impact. Soil erosion and its subsequent loss are the result of the actions of water and wind. The likelihood of erosion is higher with an increase in slope, the narrowing of runoff channels, and the removal of groundcover such as vegetation. Human activities associated with development such as grading, particularly on slopes, increase the risk for erosion in affected areas. Erosion and loss of topsoil are concerns in the context of geology and soils since these processes, if occurring under, adjacent to, or even in proximity to transportation facilities, structures, or other improvements, can destabilize structural foundations and potentially result in damage to affected buildings and facilities, particularly in conjunction with seismic events. Loss of topsoil can also decrease the agricultural productivity of farmland, including potential adverse effects on Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (refer to Section 3.2, *Agriculture and Forestry Resources*, of this 2024 PEIR for further discussion of potential impacts to farmland resulting from implementation of the Plan). Erosion also increases the risks of dust storms, which can degrade air quality (refer to Section 3.3, *Air Quality*, of this 2024 PEIR for further discussion of dust-related air quality impacts).

Some projects resulting from Plan implementation would involve major construction of new facilities that may involve rail lines, highway segments, or other anticipated development patterns that would be within previously undisturbed areas, which may result in soil erosion and the loss of topsoil. Additionally, some projects may also require significant earthwork including cuts into hillsides, which could become unstable over time, increasing long-term erosion potential. Plan policies and strategies that encourage denser development could also contribute to loss of topsoil through more widespread construction of underground parking garages. Improvements and modifications to existing ROWs, such as high-occupancy vehicle lanes, high-occupancy toll lanes, new busways and capacity enhancement facilities, mixed flow lanes, and ROW maintenance activities, would have less potential to impact topsoil because these project locations have previously been disturbed. However, road cuts could expose soils to erosion over the life of the project, creating potential landslide and falling rock hazards. Engineered roadways could be undercut over time by storm water drainage and wind erosion. Some areas would be more susceptible to erosion than others due to the naturally occurring soils with high erosion potential.

Notwithstanding natural soil types, engineered soils can also erode due to poor construction methods and design features or lack of maintenance. Projects implemented under the Plan could be located in areas susceptible to geologic hazards including high soil erodibility. Construction of additional lanes on freeways, other transportation facilities or development could also potentially result in the loss of topsoil, through grading, trenching, excavation, and/or soil removal.

Construction activities for projects implemented under the Plan would involve ground-disturbing earthwork that could include removal of existing buildings and paved areas, soil excavation and backfilling, trenching, and grading. These activities could increase the susceptibility of soils on project sites to erosion by water (i.e., stormwater) or wind. During construction, heavy equipment such as bulldozers, graders, earth movers, heavy trucks, trenching equipment, and other machinery is likely to be used. Such machinery could contribute pollutants to stormwater runoff in the form of sediment, fuels, oil, lubricants, hydraulic fluid, or other contaminants. Additionally, site work could result in conditions of runoff. Sediment, silt, and construction debris, if mobilized during construction, could be transported to receiving waters. In the absence of runoff controls, exceedances of water quality standards could result. If not controlled and managed, the impact of soil erosion could be significant.

As discussed in greater detail in Section 3.10, *Hydrology and Water Quality*, of this 2024 PEIR, construction of future projects would typically require disturbance of more than one acre and thus would be required to apply for coverage

under the State Construction General Permit to comply with federal NPDES regulations. A site-specific SWPPP would be developed and implemented as part of each future project in accordance with the Construction General Permit to prevent water quality impacts during demolition and construction activities. The SWPPP would include BMPs designed to control and reduce soil erosion. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fences and fiber rolls to trap sediment, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, vehicle and equipment washing and fueling. In addition, all state projects for which Caltrans is the sponsor agency would be required to comply with the Caltrans Statewide NPDES permit that regulates all stormwater discharges from Caltrans owned conveyances, maintained facilities, and construction activities. The Caltrans Statewide NPDES permit also requires the implementation of similar BMPs. The inclusion of runoff control measures during construction activities of future projects would generally prevent adverse impacts to water quality under normal circumstances.

Stormwater runoff from operation of future projects implemented under the Plan would potentially contain pollutants common in urban and transportation runoff, including sediment, fuels and oils, metals, pesticides and herbicides, nutrients, and trash. Pollutants in stormwater runoff from urban development would have the potential to adversely impact water quality if the types and amounts are not adequately controlled or treated. Improper project design could result in increased runoff from sites that could result in erosion or loss of topsoil. Increased runoff could also result in exceeding that capacity of existing stormwater systems that could result in erosion or loss of topsoil.

Stormwater runoff from the types of urban uses that would result from implementation of the Plan would be regulated under the Municipal Stormwater Program (i.e., the Municipal Separate Storm Sewer System [MS4] or Municipal Regional Permit or Caltrans Statewide Storm Water Permit depending on the project location), as discussed in Section 3.10.2, *Regulatory Framework*, in Section 3.10, *Hydrology and Water Quality*, of this 2024 PEIR. Project applicants would be required to submit project design plans to the appropriate regulatory agency to demonstrate that the operation of their project would comply with the applicable permit requirements. The requirements include capturing and treating stormwater prior to exiting the project site and designing the stormwater system so as to not exceed the capacity of the local stormwater system into which the stormwater is discharged. BMPs included in site designs and plans for proposed projects would be reviewed by the relevant agency's engineering staff to ensure adequate treatment and design capacity prior to permit issuance. The review and permitting process would ensure that the permit's waste discharge requirements would not be violated by future projects. The BMPs would include stormwater collection and treatment systems with measures such as infiltration galleries, bioswales, bioretention basins, and storage and reuse of stormwater for landscaping.

The implementation of these types of BMPs required by the permits would typically prevent adverse impacts to water quality under normal circumstances. In addition to MS4 and Caltrans stormwater requirements, and as discussed in Section 3.10, *Hydrology and Water Quality*, of this 2024 PEIR, most jurisdictions in the SCAG region have adopted low-impact development (LID) requirements for all development projects, and many agencies are incorporating such LID features into their MS4 permit requirements (see discussion in Regulatory Framework in Section 3.10, *Hydrology and Water Quality*). LID is a set of stormwater management strategies that reduces impervious surfaces, treats runoff, controls runoff peaks and durations, and thereby helps protect water quality and the integrity of downstream receiving water bodies from water-borne pollutants including eroded soil materials. Projects less than an acre not subject to LID regulations may have minor site-specific impacts but such impacts are not anticipated to be significant or contribute to a regional-scale impacts. With compliance with existing permits, operation of the majority of future projects under the Plan would not violate any waste discharge requirements or otherwise substantially degrade water quality. However, while compliance with existing

stormwater regulations would adequately address the vast majority of impacts associated with soil erosion and loss of topsoil, given the size and geologic diversity of the region and associated uncertainties regarding the nature and location of future development as well as regulatory enforcement, it is possible that some projects could result in substantial soil erosion or loss of topsoil, which would cause a significant impact. As such, impacts are considered significant and mitigation is required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-GEN-1.

PROJECT-LEVEL MITIGATION MEASURES

PMM-GEO-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to geologic hazards. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a) While compliance with the various municipal regional stormwater permits (MS4) is required by law, not all areas are necessarily covered. For those areas that are not covered under a municipal stormwater permit (MS4), consistent with the requirements of the SWRCB and local regulatory agencies with oversight of development associated with the Plan, ensure that project designs provide adequate slope drainage and appropriate landscaping to minimize the occurrence of slope instability and erosion. Design features should include measures to reduce erosion caused by stormwater. Road cuts should be designed to maximize the potential for revegetation.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to substantial soil erosion and loss of topsoil, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT GEO-3 Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.

Significant and Unavoidable Impact – Mitigation Required

Liquefaction and lateral spreading are most induced by seismic shaking, which is addressed in the discussion for Impact GEO-1 above. Subsidence has historically occurred within the SCAG region due to groundwater overdraft, mining activities, and petroleum extraction; projects implemented under the Plan are not anticipated to include any of these activities.

Slope failure results in landslides from unstable soils or geologic units. As discussed above, construction of transportation projects included in the Plan and future land use projects may require substantial earthwork and road cuts, increasing the potential for slope failures, such as landslides or collapse.

Hazards associated with unstable soils or geologic units are dependent on site-specific conditions, as well as the specific nature of the individual project proposed. Projects implemented under the Plan would typically be subject to appropriate design-level geotechnical evaluations prior to final design and construction, as required by the CBC, Caltrans requirements, and local building codes, as appropriate. Implementing the regulatory requirements in the CBC, Caltrans, and local ordinances and ensuring that all buildings and structures are constructed in compliance with applicable regulations is the responsibility of the project engineers and building officials within each jurisdiction. The geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC, Caltrans, and local codes while applying standard engineering practice and the appropriate standard of care for the particular region in California. The California Professional Engineers Act (Building and Professions Code Sections 6700-6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provides the basis for regulating and enforcing engineering practice in California. The local building officials are responsible for inspections and ensuring compliance prior to approval and issuance of the building permit for each project.

With adherence to grading permit and building code requirements, including seismic design criteria as required by the CBC, Caltrans, and local codes, transportation projects and anticipated land use projects would, under normal circumstances, be designed to minimize potential risks related to unstable soils and geologic units. Cities and counties would impose the recommended design parameters as a condition of any required planning approval, and compliance would be ensured through plan checks and development review processes. Nonetheless, while compliance with existing building codes and other regulations would address most geologic hazards associated with landslide, lateral spreading, subsidence, liquefaction, or collapse, given the size and geologic diversity of the region and associated uncertainties regarding the nature and location of future development and regulatory enforcement, it is possible that some projects could exacerbate existing geologic conditions thus resulting in a significant impact. Therefore, impacts associated with landslide, lateral spreading, subsidence, liquefaction, or other collapse resulting from implementation of the Plan are considered significant and mitigation is required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See **SMM-GEN-1**.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-GEO-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to landslides, lateral spreading, subsidence, liquefaction, or collapse, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT GEO-4 **Be located on expansive soil creating substantial risks to life or property.**

Significant and Unavoidable Impact – Mitigation Required

Projects implemented under the Plan, particularly projects involving large-scale ground disturbance during construction such as grade separation projects, mixed flow lane projects, and rail projects, and compact development strategies, may expose people and structures to risks where located on expansive soils. Soils with high percentages of clay can expand when wet, causing structural damage to surface improvements. These clay soils can occur in localized areas throughout the SCAG region. Failure to conduct geotechnical investigations to identify and implement recommendations to address expansive soil could ultimately result in damage to structures and roadways.

As discussed above in Impact GEO-3, projects implemented under the Plan would normally be required to undergo appropriate design-level geotechnical evaluations prior to final design and construction, as required by the CBC, Caltrans building requirements, and local building codes and ordinances. This would include investigating a given site for the presence of expansive soils and, if present, providing geotechnical recommendations to address such soils. Recommendations could consist of removal of expansive soils and replacement with imported engineered fill or treating the expansive soils to reduce the expansive potential (e.g., lime treatment). Local building officials for affected jurisdictions would be responsible for inspections and ensuring compliance prior to approval of building permits.

Expansive soil conditions would typically be addressed through the integration of geotechnical information in the design process for development projects to determine whether a site is suitable for a project. Compliance with CBC, Caltrans, and local building codes and ordinances would reduce hazards relating to expansive soils for the vast majority of projects. In addition, industry practice and state-provided guidance would further minimize risk associated with geologic hazards. However, even though compliance with existing building codes and other regulations would address most geologic hazards associated with expansive soils, given the size and geologic diversity of the region and associated uncertainties regarding the nature and location of future development and regulatory enforcement, it is possible that some projects could exacerbate existing geologic conditions thus resulting in a significant impact. Therefore, impacts associated with expansive soils resulting from implementation of the Plan are considered significant and mitigation is required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-GEN-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-GEO-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to expansive soils, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT GEO-5 **Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.**

Significant and Unavoidable Impact – Mitigation Required

The Plan includes policies, strategies and investments intended to produce denser development in well-served transit areas. These policies, strategies, and investments encourage compact development in PDAs, and more walkable, mixed-use communities to accommodate the anticipated growth of over 2 million people by 2050. The Plan does not encourage or anticipate residential development in areas where sewers are not available for the disposal of wastewater or where densities would not support the provision of sanitary sewers. The Plan's transportation projects would not require septic tanks or alternative wastewater disposal systems. Moreover, the PDAs identified in the Plan are well served by sanitary sewer systems. To the extent septic tanks and alternative wastewater disposal systems may be required in more rural areas, septic tanks and alternative wastewater disposal systems are heavily regulated at the state, regional, and local level. Local jurisdictions also have general plans that contain policies and implementation measures, including BMPs relevant to the use of septic tanks or alternative water disposal systems. County environmental health departments typically regulate septic tanks through measures such as requiring a Sewage Disposal Permit for construction, reconstruction, repair, or abandonment of septic tanks. However, while regulation of septic systems by various agencies including County health departments would generally address most potential impacts associated with soils incapable of supporting the use of such systems, given the size and geologic diversity of the region and associated uncertainties regarding the nature and location of future development and regulatory enforcement, it is possible that some projects could cause localized adverse impacts on affected soils and geologic units thus resulting in a significant impact. Therefore, impacts from having soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater are considered significant, and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-GEN-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to soils incapable of supporting the use of septic tanks or alternative wastewater disposal systems, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT GEO-6 **Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.**

Significant and Unavoidable Impact – Mitigation Required

The diverse geological settings throughout the SCAG region span the entire range of sensitivities for paleontological resources. The focus of the following analysis is on the most sensitive geological units in the region, characterized by their distinguishing environments and ages. Each of these geologic units has a proven record of yielding sensitive paleontological resources.

Potential impacts to paleontological resources would be more likely to occur from ground-disturbing activities associated with implementation of the Plan rather than during ongoing operations. Although projects implemented under Connect SoCal 2024 would be subject to applicable requirements of the Paleontological Resources Preservation Act, the Antiquities Act, California PRC Section 5097.5, adopted county and city general plans, and other federal, state and local regulations, direct permanent impacts to paleontological resources as a result of the Plan may result from ground disturbance associated with construction. Ground-disturbing activities such as excavation for building foundations and bridges, trenching for utility lines, tunneling, and grading, could damage or destroy sensitive paleontological resources on or near the surface or at depth. Construction in previously undisturbed areas and deep excavation activities would have the greatest probability to impact intact buried paleontological resources. The potential for direct impacts to paleontological resources may be comparatively less for improvements to existing facilities and modifications to existing rights-of-way since these areas have been previously disturbed. However, any construction in geologic units with paleontological resources sensitivity could result in potentially significant damage to or destruction of unique paleontological resources.

Direct permanent impacts may arise if paleontological resources cannot be completely avoided by project design. Substantial damage to or destruction of significant paleontological resources would represent a significant impact. Excavation of the sediments and any significant fossils could destroy or degrade the condition of the fossils; additionally, the nature of project excavation would cause any fossils to be removed from their stratigraphic

context, thereby reducing the scientific usefulness of the fossil. The extensive distribution and presence of rock units below the ground surface that may contain significant fossilized remains makes it difficult to predict the location of paleontological resources during the project planning phase, and thus increases the likelihood of inadvertent discovery of significant paleontological resources during construction and ground-disturbing activities. Therefore, the Plan has the potential to result in substantial alteration or removal of significant paleontological resources from construction activities, and therefore impacts are considered significant and mitigation is required.

MITIGATION MEASURES

PROJECT-LEVEL MITIGATION MEASURES

- PMM-GEO-3** In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to paleontological resources. Such measures may include the following or other comparable measures identified by the Lead Agency:
- a) For sites where the presence of paleontological resources is considered possible, as appropriate obtain review by a qualified paleontologist (meets the SVP standards for a Principal Investigator or Project Paleontologist or the Bureau of Land Management (BLM) standards for a Principal Investigator), to determine if the project has the potential to require ground disturbance of parent material with potential to contain unique paleontological or resources, or to require the substantial alteration of a unique geologic feature. The assessment should include museum records searches, a review of geologic mapping and the scientific literature, geotechnical studies (if available), and potentially a pedestrian survey, if units with paleontological potential are present at the surface.
 - b) Avoid exposure or displacement of parent material with potential to yield unique paleontological resources.
 - c) Where avoidance of parent material with the potential to yield unique paleontological resources is not feasible:
 - 1) All on-site construction personnel receive Worker Education and Awareness Program (WEAP) training prior to the commencement of excavation work to understand the regulatory framework that provides for protection of paleontological resources and become familiar with diagnostic characteristics of the materials with the potential to be encountered.
 - 2) A qualified paleontologist prepares a paleontological resources management plan (PRMP) to guide the salvage, documentation and repository of unique paleontological resources encountered during construction. The PRMP should adhere to and incorporate the performance standards and practices from the 2010 SVP Standard procedures for the assessment and mitigation of adverse impacts to paleontological resources. If unique paleontological resources are encountered during construction, use a qualified paleontologist to oversee the implementation of the PRMP.
 - 3) Monitor ground disturbing activities in parent material, with a moderate to high potential to yield unique paleontological resources using a qualified paleontological monitor meeting the standards of SVP or BLM to determine if unique paleontological resources

are encountered during such activities, consistent with the specified or comparable protocols.

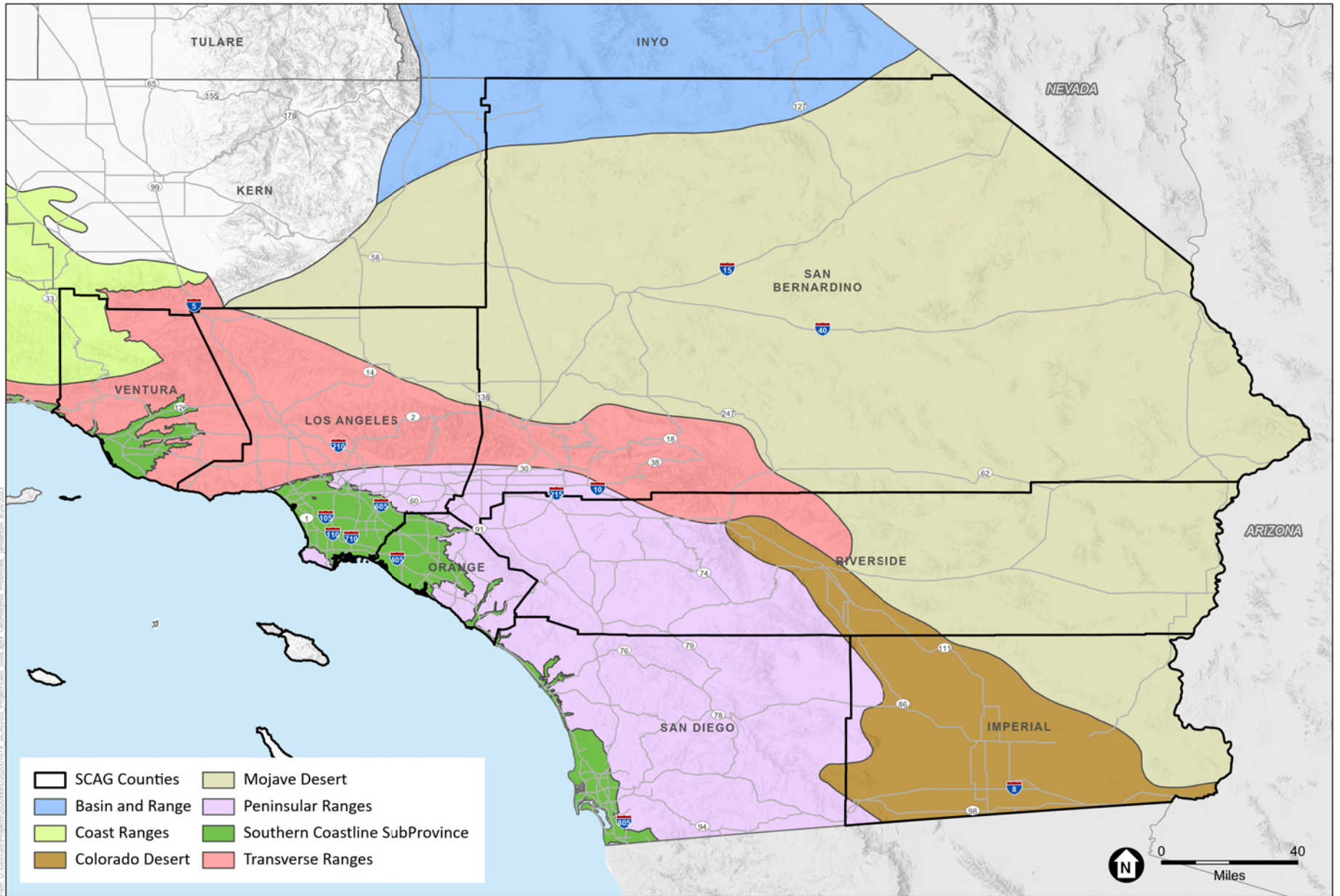
- 4) Identify where ground disturbance is proposed in a geologic unit having the potential for containing fossils and specify the need for a paleontological monitor to be present during ground disturbance in these areas.
- d) Avoid routes and project designs that would permanently alter unique geological features.
- e) Salvage and document adversely affected resources sufficient to support ongoing scientific research and education.
- f) Significant recovered fossils should be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological curation facility.
- g) Following the conclusion of the paleontological monitoring, the qualified paleontologist should prepare a report stating that the paleontological monitoring requirement has been fulfilled and summarize the results of any paleontological finds. The report should be submitted to the lead CEQA and the repository curating the collected artifacts and should document the methods and results of all work completed under the PRMP, including treatment of paleontological materials, results of specimen processing, analysis, and research, and final curation arrangements.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to paleontological resources, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to geology, soils, and paleontological resources, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

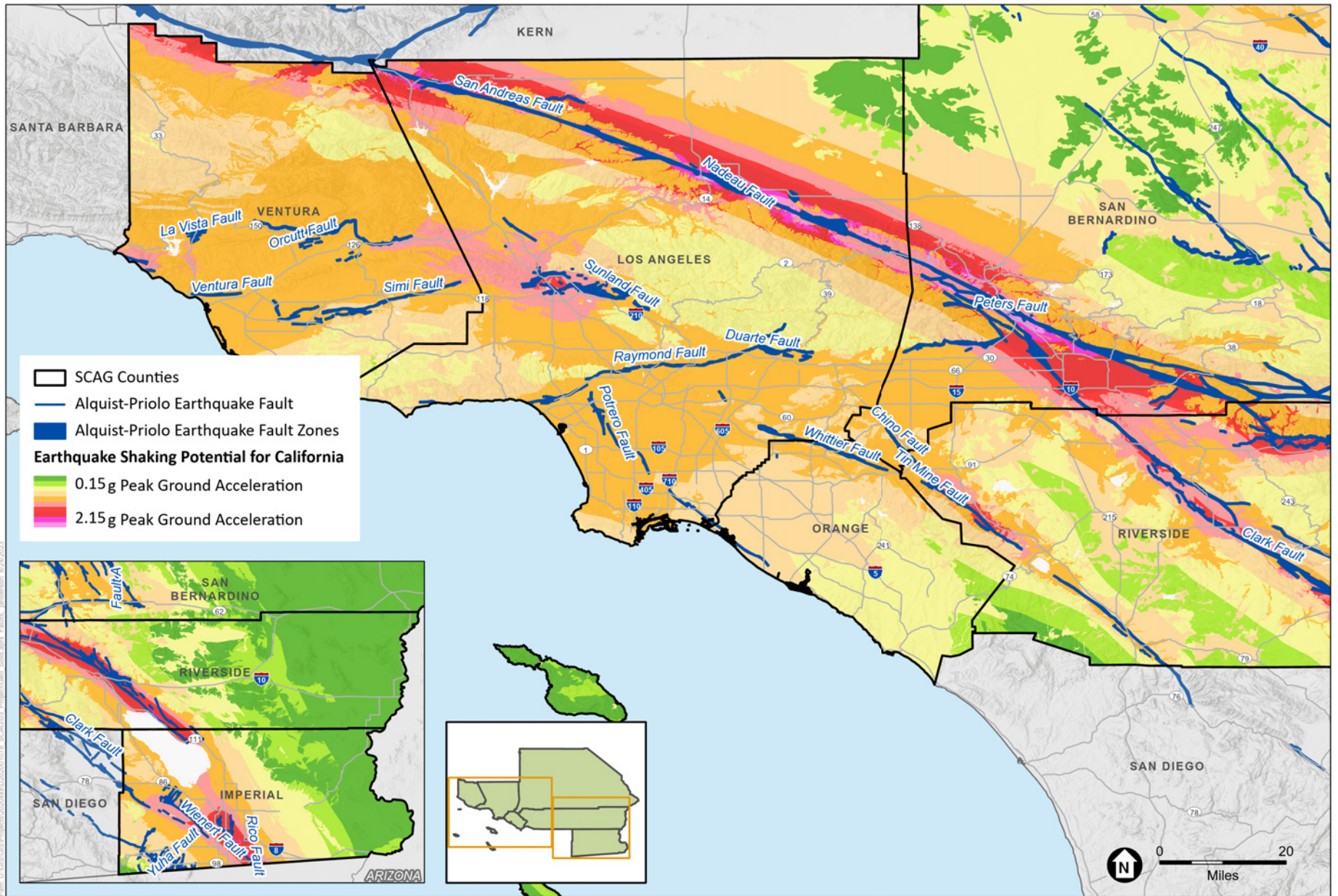


SOURCE: CGS, 2015, 2018

Connect SoCal 2024 PEIR

Map 3.7-1
Geomorphic Provinces

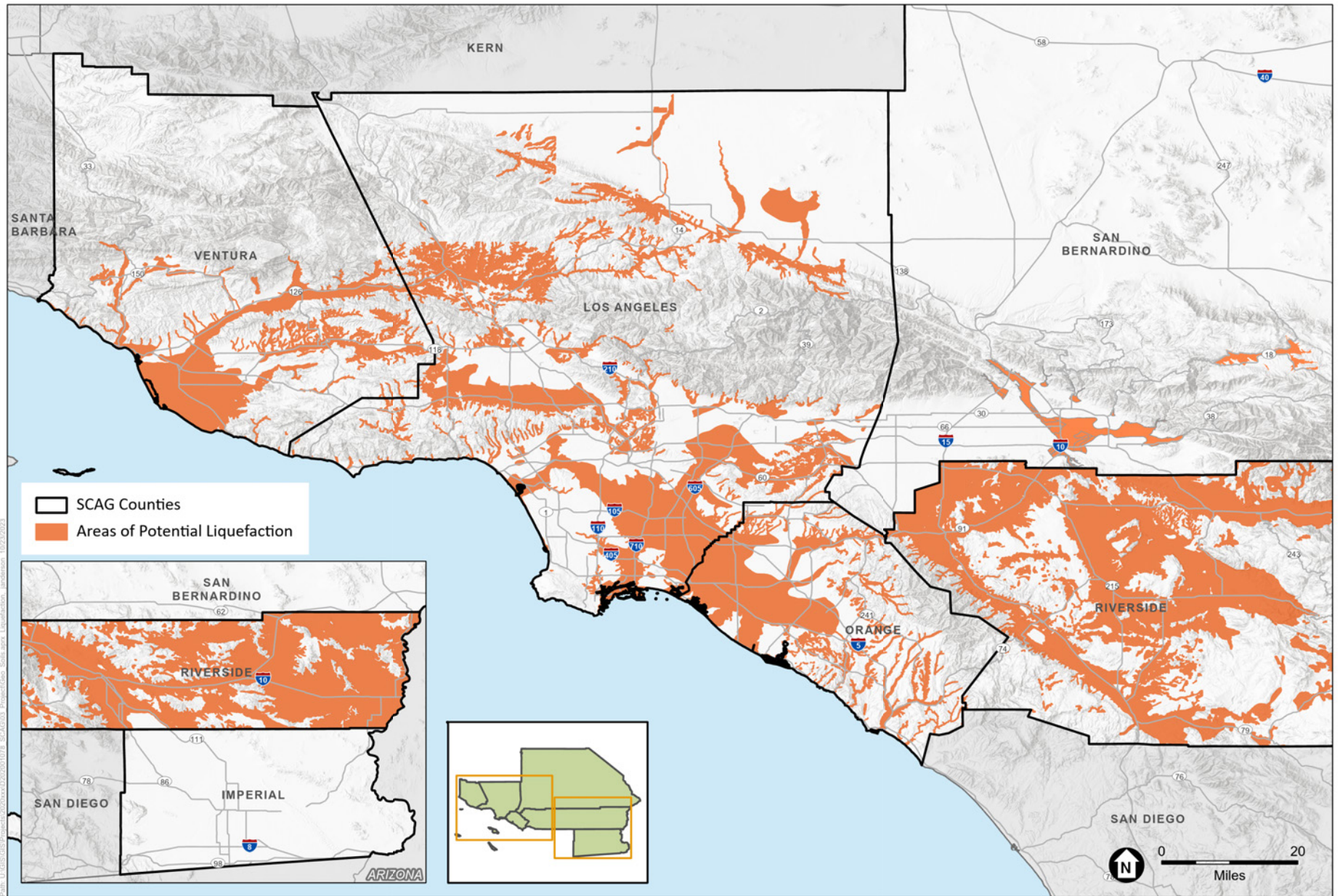




SOURCE: CGS, 2016; USGS, 2023

Connect SoCal 2024 PEIR

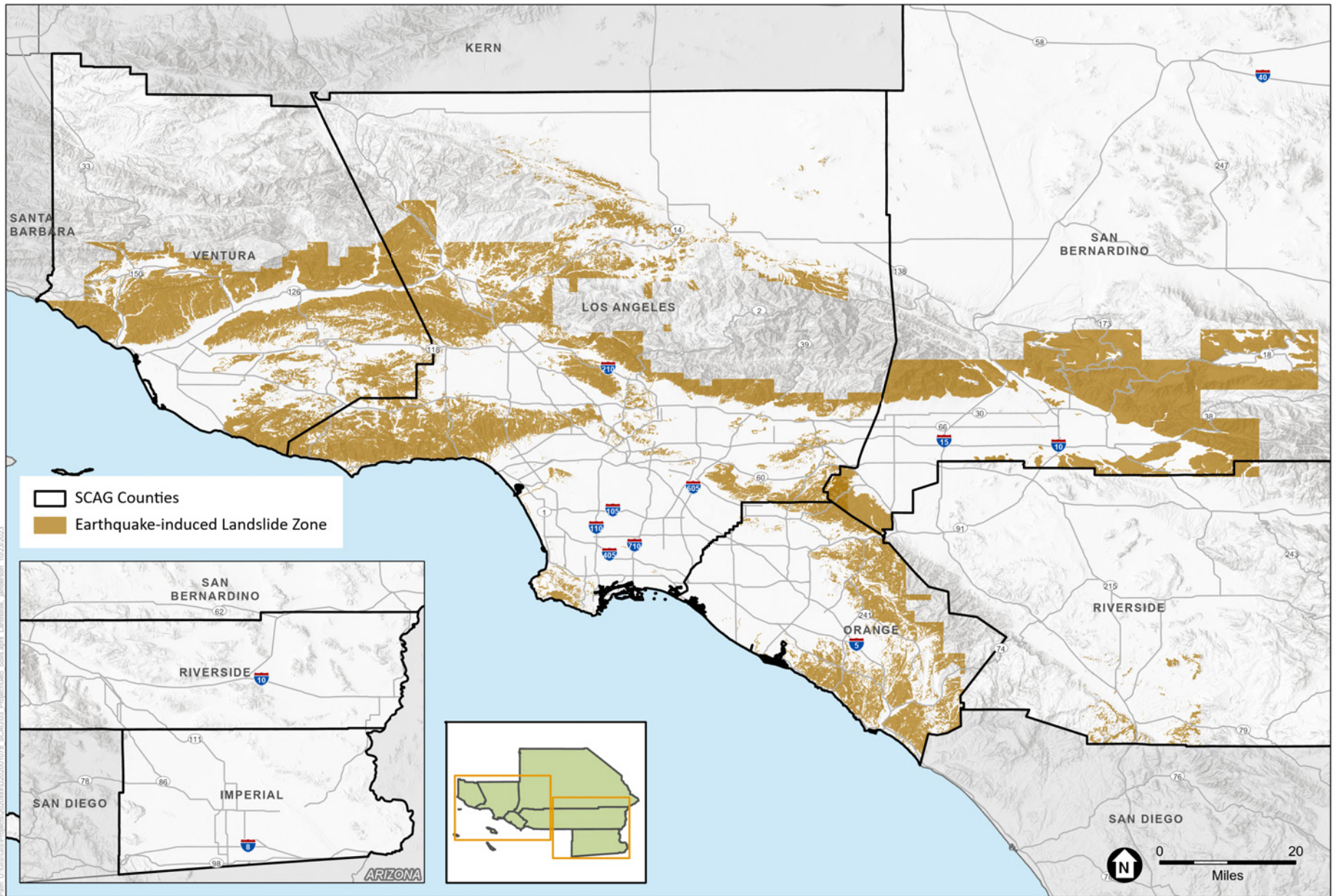
Map 3.7-2
Alquist-Priolo Earthquake Fault Zones and Areas of Probabilistic Ground Acceleration



SOURCE: : CGS, 2022; Riverside County, 2019; County of San Bernardino LUS, 2016
 NOTE: No data available for Imperial County. Partial data available for San Bernardino County.

Connect SoCal 2024 PEIR

Map 3.7-3
Areas of Potential Liquefaction



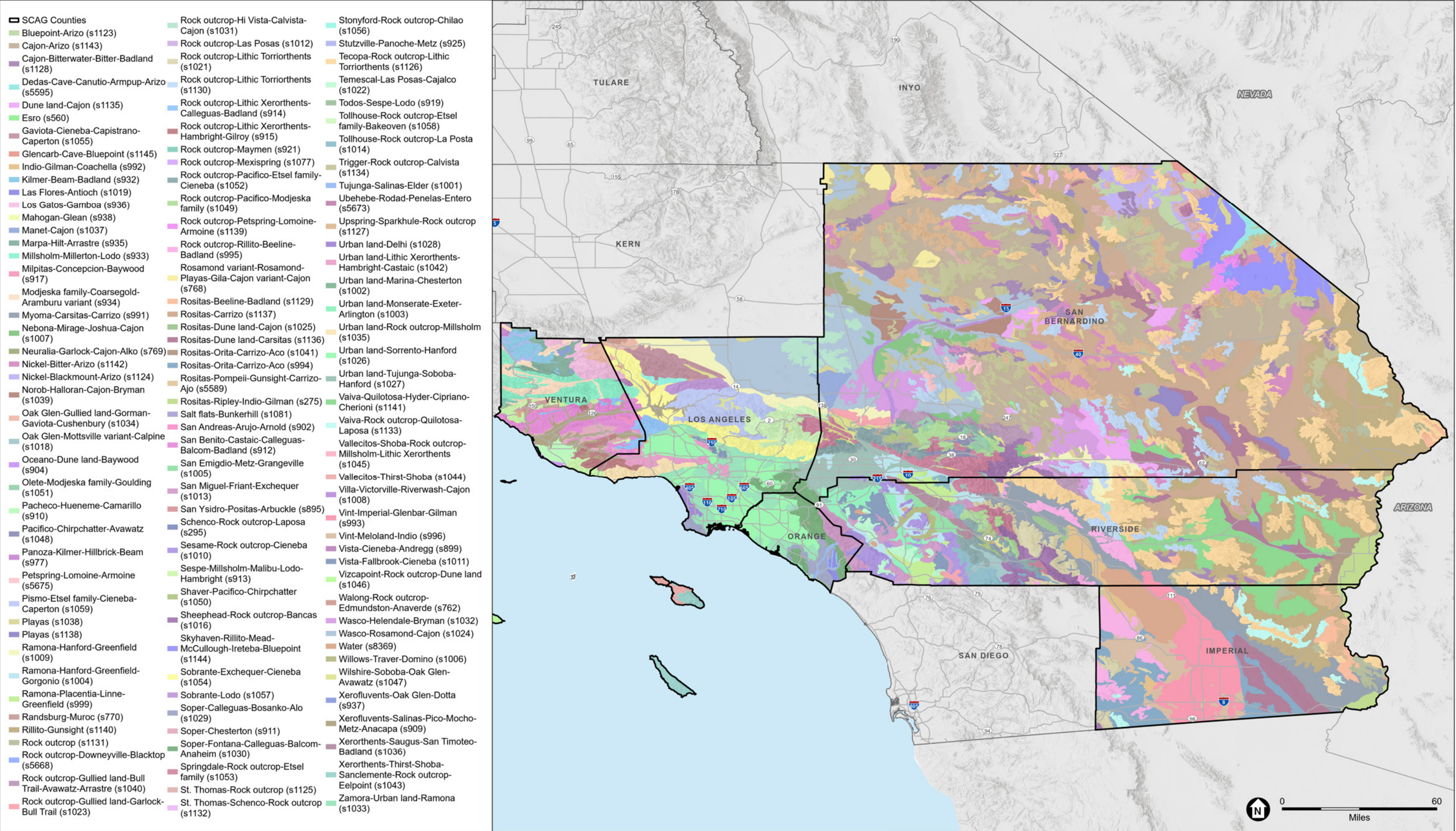
SOURCE: CGS, 2017; County of San Bernardino LUS, 2016
 NOTE: No data available for Imperial County. Partial data available for San Bernardino County.

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Map 3.7-4
 Areas of Potential Landslides



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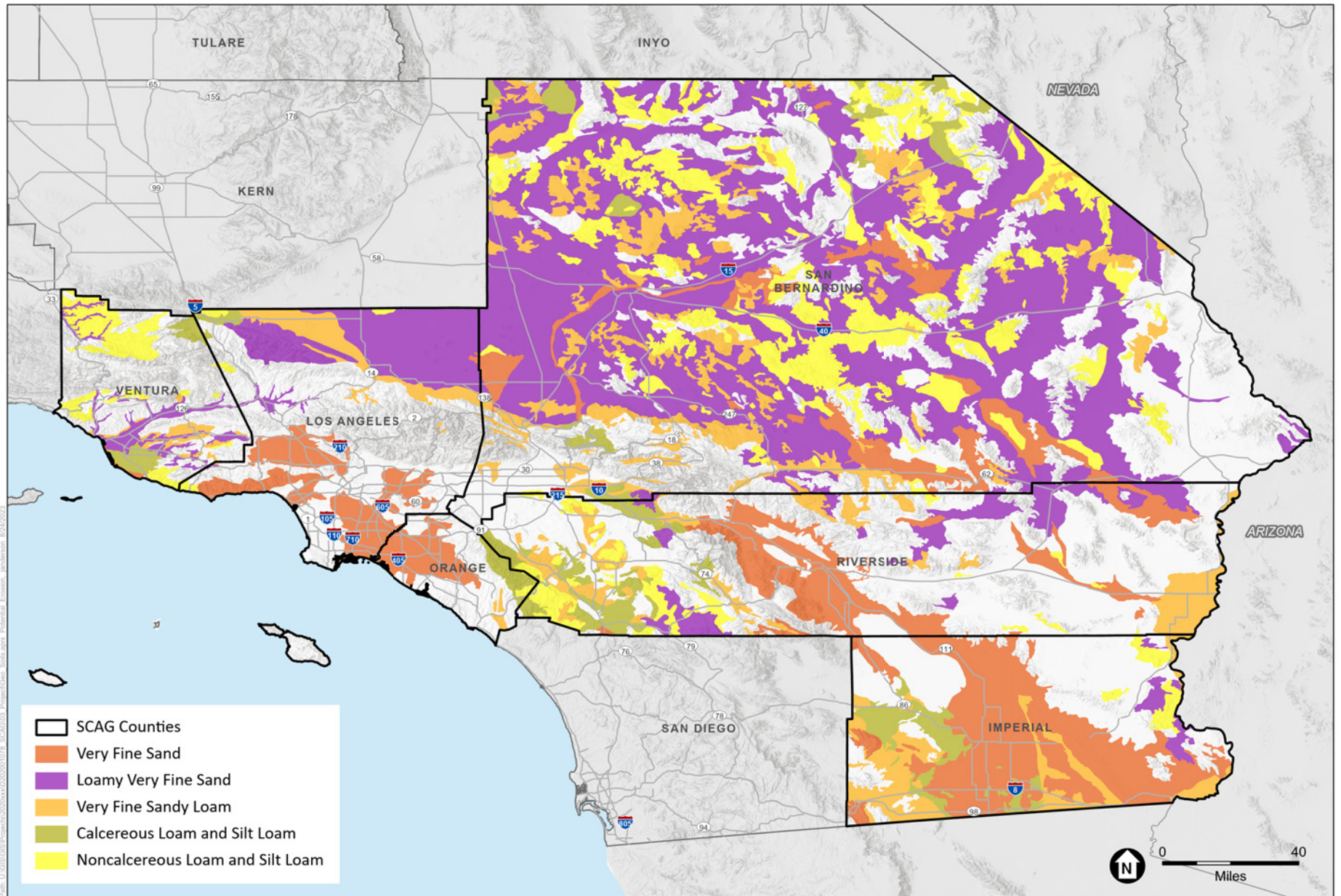
SOURCE: NRCS, 2023

Connect SoCal 2024 PEIR

Map 3.7-5
General Soil Types



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SOURCE: NRCS, 2023

Connect SoCal 2024 PEIR

Map 3.7-6
Soils with Moderate to High Erosion Potential

3.7.4 SOURCES

- Borchers, J.W, and M. Carpenter. 2014. *Land Subsidence from Groundwater Use in California*. Prepared by Ludorff & Scalmanini Consulting Engineers. April 2014. https://cawaterlibrary.net/wp-content/uploads/2017/04/1397858208-SUBSIDENCEFULLREPORT_FINAL.pdf
- Bureau of Land Management (BLM). 2016. Potential Fossil Yield Classification System for Paleontological Resources. July 8, 2016. Instruction Memorandum IM-2016-124.
- California Department of Transportation (Caltrans). 2022. *Caltrans Geotechnical Manual*. Fault Rupture. <https://dot.ca.gov/-/media/dot-media/programs/engineering/documents/geotechnical-services/202210-gm-faultrupture-a11y.pdf>.
- California Division of Mines and Geology (CDMG) and U.S. Geological Survey (USGS). 1996. *Probabilistic Seismic Hazard Assessment for the State of California USGS Open-File Report*. CDMG 96-08.
- California Geological Survey (CGS). 2002. California Geomorphic Provinces, Note 36. December.
- CGS. 2010. Geologic Map of California. California Geologic Map Series, Map No. 2.
- CGS. 2015. *Geological Gems of California State Parks*. Special Report 230.
- CGS. 2016. Earthquake Shaking Potential for California. Map Sheet 48.
- CGS. 2017. CGS Webservice of Seismic Hazard Zone Maps for Landslides. May 26.
- CGS. 2022a. CGS Seismic Hazards Program: Liquefaction Zones. February 11.
- CGS. 2022b. *The 1992 Landers-Big Bear Earthquakes*. June.
- Dooley, B., B.E. Stoneburg, and A.C. Dooley Jr. 2022. First occurrence of Homotherium serum in the Irvingtonian San Timoteo Formation, San Bernardino County, California. Abstracts with Programs – Geological Society of America 54(2): Abstract no. 22-2.
- Leatham, W.B., and D.A. Kunath. 2012. The fossil record of ecologically threatened fish species; the deep history of tui/arroyo chubs (Siphatelles) of the Mojave and southwestern Great Basin, eastern California, USA. *Bulletin – Southern California Academy of Sciences* 111(1): 59.
- Loughney, K.M., and C. Badgley. 2020. The influence of depositional environment and basin history on the taphonomy of mammalian assemblages from the Barstow Formation (middle Miocene), California. *Palaios* 35(4): 175-190. DOI:10.2110/palo.2019.067.
- National Park Service (NPS). 2023. Laws, Regulations, & Policies. <https://www.nps.gov/subjects/fossils/fossil-protection.htm>. Accessed April 2023.
- Natural Resources Conservation Service (NRCS). 2022. Web Soil Survey. <https://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>. Accessed January 2023.
- NRCS. 2023. RUSLE K Values.
- Reheis, M.C., J. Bright, S.P. Lunds, D.M. Miller, G. Skipp, and R.J. Fleck. 2012. A half million year record of paleoclimate from the Lake Manix core, Mojave Desert, California. *Palaeogeography, Palaeoclimatology, Palaeoecology* 365–366: 11–37.
- Reynolds, R.E., and A.R.C. Milner. 2012. Early Neogene cat tracks from California and Utah. *Desert Symposium* 2012: 153–159.

- Santos, G.-P., J.F. Parham, and B.L. Beatty. 2016. New data on the ontogeny and senescence of *Desmostylus* (*Desmostylia*, Mammalia). *Journal of Vertebrate Paleontology* 36(2): Article e1078344.
- Southern California Earthquake Data Center. 2023. Earthquake Information, Chronological Earthquake Index, Northridge Earthquake.
- Society of Vertebrate Paleontology (SVP). 2010. *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*.
- State Water Resources Control Board (SWRCB). 2018. 3.2C – Construction Practices – Onsite Wastewater Treatment Systems (OWTS). July 5.
- SWCA Environmental Consultants. 2019. *Draft Paleontological Resources Technical Report for the 2020–2045 Regional Transportation Plan and Sustainable Communities Strategy for the Southern California Association of Governments*. https://scag.ca.gov/sites/main/files/file-attachments/dpeir_connectsocial_appendix037paleontologicalresources.pdf?1606004051. Accessed July 5, 2023.
- U.S. Geological Survey (USGS). 2019a. M 7.1 – 18 km W of Searles Valley, CA (2019 Ridgecrest Earthquake). July 9.
- USGS. 2019b. M 7.9 1857 Fort Tejon Earthquake. August 5.
- USGS. 2023a. Earthquake Hazards Program: Quaternary Fault and Fold Database. https://earthquake.usgs.gov/cfusion/qfault/query_main_AB.cfm?CFID=1322837&CFTOKEN=66fceb6a140aa938-F82CC7E1-A43F-D9BB-AC8B50A1C3900752. Accessed January 2023.
- USGS. 2023b. Faults: Quaternary Fault and Fold Database of the United States. <https://www.usgs.gov/programs/earthquake-hazards/faults>. Accessed January 2023.
- Virginia Polytechnic Institute and State University (Virginia Tech [VT]). 2013. Liquefaction-Induced Lateral Spreading.
- Working Group on California Earthquake Probabilities (WGCEP). 2015. UCERF3: A new earthquake forecast for California’s complex fault system: U.S. Geological Survey Fact Sheet 2015–3009, March.
- Yerkes, R.F, T.H. McCulloh, J.E. Schoellhamer, and J.G. Vedder. 1965. Geology of the Los Angeles Basin California – an Introduction, Geological Survey Professional Paper 420-A.

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3.8 GREENHOUSE GAS EMISSIONS

This section of the 2024 PEIR describes greenhouse gas (GHG) emissions in the SCAG region, set forth the regulatory framework that governs greenhouse gas emissions, and evaluates the significance of the potential impacts related to greenhouse gas emissions that could result from development of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures, as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible. Additional discussions of ozone are provided in Section 3.3, *Air Quality*. Consideration of climate change on biodiversity and habitat is provided in Section 3.4, *Biological Resources*. Additional discussions of climate change on surface water and groundwater are provided in Section 3.10, *Hydrology and Water Quality*, as well as on wildfires in Section 3.20, *Wildfire*.

3.8.1 ENVIRONMENTAL SETTING

Gases that trap heat in the atmosphere are often called greenhouse gases, or GHGs, comparable to a greenhouse, which captures and traps radiant energy. GHGs are emitted by natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Global warming is the observed increase in average temperature of the Earth's surface and atmosphere. The primary cause of global warming is an increase of GHGs in the atmosphere. The six major GHGs are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (NO₂), sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), and perfluorocarbon (PFCs). The GHGs absorb longwave radiant energy emitted by the Earth, which warms the atmosphere. The GHGs also emit longwave radiation both upward to space and back down toward the surface of the Earth. The downward part of this longwave radiation emitted by the atmosphere is known as the "greenhouse effect." Emissions from human activities such as fossil fuel combustion for electricity production and vehicles have elevated the concentration of these gases in the atmosphere (SCAQMD 2017b).

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for GHG emissions follow:

- *Greenhouse gases (GHGs)*: GHGs are those compounds in the earth's atmosphere that play a critical role in determining the earth's surface temperature. Specifically, these gases allow high-frequency solar radiation to enter the earth's atmosphere but retain the low-frequency energy, which is radiated back from the earth to space, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Increased concentrations of GHGs in the earth's atmosphere are thought to be linked to global climate change, such as rising surface temperatures, melting icebergs and snowpack, rising sea levels, and the increasing frequency and magnitude of severe weather.
- *Climate change*: Climate change is the variation of earth's climate over time, whether due to natural variability or as a result of human activities. Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, (i.e., GHGs), to the atmosphere.
- *Global warming potential (GWP)*: Metric used to describe how much heat a molecule of a GHG absorbs relative to a molecule of carbon dioxide (CO₂) over a given period of time (20, 100, and 500 years). CO₂ has a GWP of 1.
- *MTCO₂e*: Metric ton of CO₂e.

- *MMTCO_{2e}*: Million metric tons of CO_{2e}.
- *Carbon dioxide (CO₂)*: Enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and as a result of other chemical reactions (e.g., manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- *Carbon dioxide-equivalent (CO_{2e})*: The standard unit to measure the amount of GHGs in terms of the amount of CO₂ that would cause the same amount of warming. CO_{2e} is based on the GWP ratios between the various GHGs relative to CO₂.
- *Methane (CH₄)*: Emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.
- *Nitrous oxide (NO₂)*: Emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.
- *Chlorofluorocarbons (CFCs)*: One of a class of fluorinated gases with a high GWP, CFCs are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone.
- *Fluorinated gases*: Synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but they are potent GHGs, sometimes referred to as high GWP gases.
- *Hydrofluorocarbons (HFCs)*: One of a class of fluorinated gases with a high GWP, HFCs contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs.
- *Hydrochlorofluorocarbons (HCFCs)*: One of a class of fluorinated gases with a high GWP, HCFCs contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are GHGs.
- *Perfluorocarbons (PFCs)*: One of a class of fluorinated gases with a high GWP, PFCs, are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF₄] and perfluoroethane [C₂F₆]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are also used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.
- *Nitrogen Trifluoride (NF₃)*: NF₃ is an inorganic, non-toxic, odorless and non-flammable gas that is used in the manufacture of semi-conductors, as an oxidizer of high energy fuels, for the preparation of tetrafluorohydrazine, as an etchant gas in the electronic industry, and as a fluorine source in high power chemical lasers.
- *Sulfur hexafluoride (SF₆)*: One of a class of fluorinated gases with a high GWP, SF₆ is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF₆ is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.

- *Global warming potential of various GHGs:* GHGs include CO₂, CH₄, O₃, water vapor, NO₂, HFCs, PFCs, and SF₆. Carbon dioxide is the most abundant GHG. Other GHGs are less abundant but have higher global warming potential than CO₂ (see **Table 3.8-1, Greenhouse Gases and Their Relative Warming Potential Compared to CO₂**, in the *Existing Conditions* section below).

EXISTING CONDITIONS

Global climate change refers to any significant change in climate measurements, such as temperature, precipitation, or wind, lasting for an extended period (i.e., decades or longer) (USEPA 2017). GHGs are any gas that absorbs infrared radiation in the atmosphere and are the result of both natural and human-influenced activities. Forest fires; decomposition; industrial processes; landfills; and consumption of fossil fuels for power generation, transportation, heating, and cooling are the primary sources of GHG emissions. Without human intervention, the earth maintains an approximate balance between the emission of GHGs into the atmosphere and the storage of GHGs in oceans and terrestrial ecosystems. Increased combustion of fossil fuels (e.g., gasoline, diesel, coal), have contributed to the rapid increase in atmospheric levels of GHGs over the last 150 years. By 1850, the world emitted a cumulative total of approximately 4.76 billion tons of CO₂ and by 2019, the world emitted a cumulative total of approximately 1.39 trillion tons of CO₂ (estimated from 1750 onward and includes fossil fuels and industry only). Emissions from land use change, which are emissions from conversion of land, such as from forest to agriculture, are not included since they are subject to more uncertainty than emissions for fossil fuels and industry (Our World in Data 2023). As defined above, the Global Warming Potential (GWP) is the metric used to describe how much heat a molecule of a GHG absorbs relative to a molecule of carbon dioxide (CO₂) over a given period of time (20, 100, and 500 years). CO₂ has a GWP of 1. GHGs include CO₂, CH₄, O₃, water vapor, NO₂, HFCs, PFCs, and SF₆. Carbon dioxide is the most abundant GHG. Other GHGs are less abundant but have higher global warming potential than CO₂. Table 3.8-1 displays the GWP of the GHGs listed above.

As shown in Table 3.8-1, emissions of other GHGs are frequently expressed in the equivalent mass of CO₂, denoted as CO₂e. GHGs are the result of natural and anthropogenic activities. Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions.

Understanding of the fundamental processes responsible for global climate change has improved over the past decade, and the predictive capabilities are advancing. However, there remain significant scientific uncertainties, for example, in estimating current and future emissions and the appropriate assumptions, predictions of local effects of climate change, occurrence of extreme weather events, effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, rate of sea ice melting, and changes in oceanic circulation. Due to the complexity of the earth's climate system, the uncertainty in its description and in the prediction of changes may never be completely eliminated. Because of these uncertainties, there continues to be significant debate over the extent to which increased concentrations of GHGs have caused or will cause climate change and over the appropriate actions to limit and/or respond to climate change.

TABLE 3.8-1 Greenhouse Gases and Their Relative Global Warming Potential Compared to CO2

GHG	ATMOSPHERIC LIFETIME (YEARS)	GLOBAL WARMING POTENTIAL RELATIVE TO CO2
Carbon Dioxide (CO2)	50 to 100	1
Methane (CH4)	12	25
Nitrous Oxide	114	298
Hydrofluorocarbons:		
• HFC-23	270	14,800
• HFC-32	4.9	675
• HFC-125	29	3,500
• HFC-134a	14	1,430
• HFC-143a	52	4,470
• HFC-152a	1.4	124
• HFC-227ea	34.2	3,220
• HFC-236fa	240	9,810
• HFC-43-10mee	15.9	1,640
Perfluoromethane: CF4	50,000	7,390
Perfluoroethane: C2F6	10,000	12,200
Perfluorobutane: C4F10	2,600	8,860
Perfluoro-2-methylpentane: C6F14	3,200	9,300
Nitrogen Trifluoride (NF3)	740	17,200
Sulfur hexafluoride (SF6)	3,200	22,800

Source: IPCC 2007

Table Notes:

Based on 100-Year Time Horizon of the Global Warming Potential (GWP) of the air pollutant relative to CO2.

The methane GWP includes the direct effects and those indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO2 is not included.

The primary effect of rising global concentrations of atmospheric GHG levels has been a rise in the average global land and ocean temperature of approximately one degree Celsius above pre-industrial levels. Warming greater than the global annual average is being experienced in many land regions, including two to three times higher in the Arctic. Estimated global warming is currently increasing at 0.2 degrees Celsius per decade due to past and ongoing emissions. The International Panel on Climate Change (IPCC) has determined that pathways limiting global warming to 1.5 degrees Celsius require emissions to decline by about 45 percent from 2010 levels by 2030, reaching net zero by 2050. Warming forecasts and related emission pathways presented by the IPCC do not account for self-reinforcing climate feedback loops. These feedback loops include, but are not limited to: loss of sea ice, which reflects heat back into the atmosphere rather than the ocean, causing further melting; the melting of permafrost, which would release new methane emissions into the atmosphere; and the cooling effects of sulfate

pollution in the atmosphere, the loss of which would lead to additional warming (IPCC 2018). Adverse impacts from global climate change worldwide and in California may include but are not limited to:

- Declining sea ice and mountain snowpack levels, thereby increasing sea levels and sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures (USEPA 2023a).
- Since the early 1970s, glacier mass loss and ocean thermal expansion from warming together explain about 75 percent of the observed global mean sea level rise. Over the period 1993 to 2010, global mean sea level rise is consistent with the sum of the observed contributions from ocean thermal expansion due to warming from changes in glaciers, Greenland ice sheet, Antarctic ice sheet, and land water storage (IPCC 2014). Sea level in California has risen approximately 7 inches from 1900 to 2005, according to the National Climate Assessment (CARB 2015).
- Changing weather patterns, including changes to precipitation, ocean acidification and warming, and wind patterns (IPCC 2014).
- Declining Sierra snowpack levels, which account for approximately half of the surface water storage in California, by 70 percent to as much as 90 percent over the next 100 years (CalEPA 2006).
- Increasing the number of days conducive to ozone formation by 25 to 85 percent (depending on the future temperature scenario) in high ozone areas located in the Southern California area and the San Joaquin Valley by the end of the 21st century (CalEPA 2006).
- Migrating of species to suitable habitats.
- Reducing of crop yields in the agricultural sector.
- Increasing the potential for erosion of California's coastlines and seawater intrusion into the Sacramento Delta and associated levee systems due to the rise in sea level (CalEPA 2006).
- Decreasing cold temperature extremes, increasing warm temperature extremes, increasing extreme high sea levels, and increasing number of heavy precipitation events in a number of regions (IPCC 2014).
- Increasing frequency and severity of climate-related extremes including heat waves, droughts, floods, cyclones, and wildfires (IPCC 2014).

The impacts of climate change have been documented by the Office of Environmental Health Hazard Assessment (OEHHA), which includes the following changes that are already occurring (OEHHA 2018; CARB 2017b):

- A recorded increase in annual average temperatures as well as increases in daily minimum and maximum temperatures.
- An increase in the occurrence of extreme events, including wildfire and heat waves.
- A reduction in spring runoff volumes, as a result of declining snowpack.
- A decrease in winter chill hours, necessary for the production of high-value fruit and nut crops.
- Changes in the timing and location of species sightings, including migration upslope of flora and fauna, and earlier appearance of Central Valley butterflies.

An aerial survey by the U.S. Forest Service determined that approximately 15.1 million trees died in California in 2019, which is a decrease from an estimated 18.6 million trees in 2018. The tree mortality was strongly correlated

to the effects of drought and bark beetle attacks (USDA 2020). The U.S. Forest Service National Insect and Disease Forest Assessment found that due to projected climate changes from 2013-2027, the number of acres at risk of losing forest and woodlands will increase and the number of tree deaths will likely increase from already highly destructive pests, such as the mountain pine beetle (USFS 2014). This would further exacerbate the fire hazard posed from dead trees.

In the last decade, California has experienced 5 of the state's 10 largest wildfires and 7 of its 10 most destructive fires in its history. Over the past five decades, summertime forest fires have increased in size by roughly 800 percent. Though no single wildfire can be attributed solely to climate change, evidence shows that the increase in average temperatures statewide is creating conditions more prone to wildfires (Williams et al. 2023). Southern California has warmed about three degrees Fahrenheit in the last century, and every additional increment of warming speeds up evaporation, dries out soil and vegetation, and increases the amount of fuel available for a wildfire (USEPA 2016). In 2018, wildfires in California released approximately 68 million tons of carbon dioxide, or about 15 percent of the State's annual emissions (DOI 2018). Studies suggest that GHG emissions from wildfires create a positive feedback loop, wherein the emissions warm the planet further, leading to more wildfires and more emissions.

The warming climate also causes sea level rise by warming the oceans which causes water to expand, and by melting land ice which transfers water to the ocean. Sea level rise is expected to magnify the adverse impact of any storm surge and high waves on the California coast. As temperatures warm and GHG concentrations increase, more carbon dioxide dissolves in the ocean, making it more acidic. More acidic ocean water affects a wide variety of marine species, including species that people rely on for food (CARB 2017b).

While more intense dry periods are anticipated under warmer conditions, increased extreme wet conditions are also expected to increase due to more frequent warm, wet atmospheric river events and a higher proportion of precipitation falling as rain instead of snow. In recent years, atmospheric rivers have also been recognized as the cause of the majority of major floods in rivers all along the U.S. West Coast and as the source of up to 50 percent of all precipitation in California (Scripps Institution of Oceanography 2017). These extreme precipitation events, together with the rising snowline, often cause devastating floods in major river basins (e.g., California's Russian River). Looking ahead, the frequency and severity of atmospheric rivers on the U.S. West Coast will increase due to higher atmospheric water vapor that occurs with rising temperature, leading to more frequent flooding (Hagos et al. 2016; Payne and Magnusdottir 2015).

As GHG emissions continue to accumulate and climate disruption grows, such destructive events will become more frequent. Several recent studies project increased precipitation within hurricanes over ocean regions (Easterling et al. 2016; National Academies of Sciences, Engineering, and Medicine 2016). The primary physical mechanism for this increase is higher water vapor in the warmer atmosphere, which enhances moisture convergence in a storm for a given circulation strength. Hurricanes are responsible for many of the most extreme precipitation events; such events are likely to become more extreme. Anthropogenic warming by the end of the 21st century will likely cause tropical cyclones globally to become more intense on average. This change implies an even larger increase in the destructive potential per storm, assuming no changes in storm size (Sobel et al. 2016; Kossin et al. 2016).

Extreme weather events and seasons driven by climate change can differ drastically based on region and scale. For instance, in the winter of 2023, California experienced one of the state's largest snowpacks, where on April 3, 2023, the statewide snowpack was 237 percent of average for that date (DWR 2023). The California Department of Water Resources stated this was due to the increased number of atmospheric rivers (the relatively long, narrow

regions in the atmosphere that transport water vapor outside of the tropics and that makes landfall) that winter. The atmospheric rivers generated large amounts of precipitation especially as compared to the three years prior to 2023 that were the driest in the State's history (DWR 2023). Most recently, from August 19 to 20, 2023, the region experienced tropical storm Hilary, which created a state of emergency for the region and further added to annual rainfall. In Canada, 4,241 wildfires have been recorded from January to June 2023, where the acreage burned in the first half of 2023 has surpassed the total amount of land burned in 1989, which was Canada's previous annual record (CBS News 2023). Furthermore, the global average temperature for July 2023 was the highest on record for the last 120,000 years where the month is estimated to have been around 1.5 degrees Celsius warmer than the average for 1815 to 1900, representing the average for pre-industrial times and global sea surface temperatures records were also broken in July 2023 where ocean surface temperatures were the highest ever recorded and 0.51 degrees Celsius above the 1991-2020 average (United Nations News 2023). Thus, the historical record, which once set our expectations for the traditional range of weather and other natural events, is an increasingly unreliable predictor of the conditions we will face in the future.

California is committed to further supporting new research on ways to mitigate climate change and how to understand its ongoing and projected impacts. California's Fourth Climate Change Assessment and Indicators of Change Report will further update our understanding of the many impacts from climate change in a way that directly informs State agencies' efforts to safeguard the State's people, economy, and environment (CNRA 2018a; OEHHA 2018).

The State is also taking steps to make California more resilient to ongoing and projected climate impacts as laid out by the Safeguarding California Plan (CNRA 2018b). The Safeguarding California Plan was updated in 2018 to present new policy recommendations and provide a roadmap of all the actions and next steps that state government is taking to adapt to the ongoing and inevitable effects of climate change. California's continuing efforts are vital steps toward minimizing the impact of GHG emissions and a three-pronged approach of reducing emissions, preparing for impacts, and conducting cutting-edge research can serve as a model for action (CARB 2022a).

Scientific understanding of the fundamental processes responsible for global climate change has improved over the past decade, and predictive capabilities are advancing. However, there remain significant scientific uncertainties, for example, in predictions of local effects of climate change; occurrence of extreme weather events; and effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. In addition, it may not be possible to link specific projects to future specific climate change impacts, though estimating project-specific emissions and contributions is possible.

SOURCES OF GHG EMISSIONS

GLOBAL

Worldwide anthropogenic GHG emissions are estimated for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). In 2019, worldwide anthropogenic GHG emissions were estimated to be 49,900 million metric tons of CO₂ equivalents (MMTCO_{2e}) (Climatewatch 2023).

The sum of the top five GHG producing nations plus the European Union totaled approximately 28,320 MMTCO₂e (Climatewatch 2023).¹ The top five countries and the European Union accounted for approximately 57 percent of the total global GHG emissions according to 2019 data (see **Table 3.8-2, Top Five GHG Producer Countries and the European Union [Annual]**). The GHG emissions in more recent years may differ from the inventories presented in Table 3.8-2; however, the data is representative of the 2019 baseline year.

TABLE 3.8-2 Top Five GHG Producer Countries and the European Union in 2019 (Annual)

EMITTING COUNTRIES	GHG EMISSIONS (MMTCO ₂ E)
China	12,085
United States	5,819
India	3,380
European Union (EU), 27 Member States	3,236
Russia	1,890
Indonesia	1,914

Source: Climatewatch 2019

NATIONAL

As noted in Table 3.8-2, the United States was the number two producer of global GHG emissions in 2019 (World Resources Institute, undated). The primary GHG emitted by human activities in the United States was CO₂, representing approximately 81 percent of total GHG emissions (excluding sinks).² Carbon dioxide from fossil fuel combustion, the largest source of GHG emissions, accounted for approximately 74 percent of U.S. GHG emissions (excluding sinks). In 2019, carbon dioxide emissions from the transportation sector accounted for approximately 29 percent of all GHG emissions (excluding sinks) (USEPA 2021a).

STATE OF CALIFORNIA

The California Air Resources Board (CARB) compiles GHG inventories for the State of California. Based on the 2019 GHG inventory data, California emitted 404.5 MMTCO₂e including emissions resulting from imported electrical power in 2019 (CARB 2022b). Based on the GHG inventories compiled by the World Resources Institute, California’s

¹ The CO₂ equivalent emissions commonly are expressed as “million metric tons of carbon dioxide equivalent (MMTCO₂e).” The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP, such that MMTCO₂e = (million metric tons of a GHG) x (GWP of the GHG). For example, the GWP for methane is 25. This means that the emission of one million metric tons of methane is equivalent to the emission of 25 million metric tons of CO₂. GWPs and associated CO₂e values were developed by the Intergovernmental Panel on Climate Change (IPCC), and published in its Second Assessment Report (SAR) in 1996. Historically, GHG emission inventories have been calculated using the GWPs from the IPCC’s SAR. However, CARB now uses the GWPs in the IPCC AR4 for reporting Statewide GHG emissions inventories, consistent with international reporting standards. By applying the GWP ratios, Project-related CO₂e emissions can be tabulated in metric tons per year. Typically, the GWP ratio corresponding to the warming potential of CO₂ over a 100-year period is used as a baseline. The IPCC has issued an updated Fifth Assessment Report (AR5) (IPCC 2013), which has revised down the majority of the GWP for key regulated pollutants. As CARB still uses AR4 values, AR4 GWP values are reported in the section and used in analyses. Generally, the changes from AR4 to AR5 are reductions in warming potential for the GHG most associated with construction and operation of typical transportation and development projects.

² Defined by the USEPA as carbon dioxide removal from the atmosphere by “sinks,” (e.g., through the uptake of carbon and storage in forests, vegetation, and soils.)

total statewide GHG emissions rank second in the U.S. (Texas is the highest emitter of GHG) (World Resources Institute 2017a).

The primary contributors to GHG emissions in California are transportation, electric power production from both in-state and out-of-state sources, industry, agriculture and forestry, commercial and residential activities (CARB 2022b). **Table 3.8-3, GHG Emissions in California (1990 and 2019)**, provides a summary of GHG emissions reported in California in 1990 and 2019 by categories. Similarly, the primary contributors to GHG emissions in the United States are transportation, electric power production from both in-state and out-of-state sources, industry, agriculture and forestry, commercial and residential activities (USEPA 2023c). **Table 3.8-4, United States Greenhouse Gas Emissions (1990 and 2019)**, provides a summary of GHG emissions reported in the United States in 1990 and 2019 by categories.

TABLE 3.8-3 GHG Emissions in California (1990 and 2019)

SOURCE CATEGORY	TOTAL 1990 EMISSIONS (MMTCO2E)	PERCENT OF TOTAL 1990 EMISSIONS	TOTAL 2019 EMISSIONS (MMTCO2E)	PERCENT OF TOTAL 2019 EMISSIONS
Transportation	150.6	35%	162.4	40%
Electric Power	110.5	26%	60.2	15%
Commercial	14.4	3%	14.5	4%
Residential	29.7	7%	25.9	6%
Industrial	105.3	24%	80.4	20%
Recycling and Waste ^a	–	–	8.8	2%
High-GWP/Non-Specified ^b	1.3	<1%	20.7	5%
Agriculture/Forestry	18.9	6%	31.4	8%
Forestry Sinks ^c	-6.7		–	–
Net Total ^d	431	100%	404.5	100%

Source: CARB 2022b.

CARB 2007ca. Included in other categories for the 1990 emissions inventory.

b. High-GWP gases are not specifically called out in the 1990 emissions inventory.

c. Revised methodology under development (not reported for 2019).

d. CARB revised the State's 1990 level GHG emissions using GWPs from the IPCC AR4 (IPCC 2007).

As demonstrated in Table 3.8-3, California's 2019 GHG emissions are lower than 1990 levels. In 2004, California statewide GHG emissions peaked at 486.2 MMT CO₂e/year; emissions fluctuated between 2004 and 2007 and since 2007 have been following a declining trend. In 2019, emissions statewide were approximately 81.7 million metric tons of CO₂e (MMTCO₂e) lower than peak GHG levels in 2004 (CARB 2022b).

TABLE 3.8-4 United States Greenhouse Gas Emissions (1990 and 2019)

SOURCE CATEGORY	TOTAL 1990 EMISSIONS (MMTCO2E)	PERCENT OF TOTAL 1990 EMISSIONS	TOTAL 2019 EMISSIONS (MMTCO2E)	PERCENT OF TOTAL 2019 EMISSIONS
Transportation	1521.4	23.5%	1874.3	28.3%
Electric power industry	1879.7	29.0%	1650.5	24.9%
Industry	1677.3	25.9%	1568.2	23.7%
Agriculture	592.9	9.1%	655.4	9.9%
Commercial	447.0	6.9%	462.0	7.0%
Residential	345.6	5.3%	382.4	5.8%
U.S. territories	23.4	0.4%	25.1	0.4%
Gross Total	6487.3	100%	6617.9	100%

Source: USEPA 2023c

SCAG REGION

The most recent GHG emissions data by sector for the SCAG region is from 2012. Similar to the 2013 U.S. and California GHG emission profiles, transportation, industrial, and electricity are the three largest contributors to GHG emissions. Total SCAG emissions in 2020 were estimated to be 216 MMTCO_{2e} (2019 was not a projection year). Transportation emissions are most prevalent relative to all other sectors in California and specifically in the SCAG region. Transportation emissions accounted for approximately 38 percent of total emissions in the SCAG region, compared to 26 percent of total emissions in the United States in 2008 (SCAG 2012).

Fossil fuel carbon dioxide emissions (FFCO₂) for 2011 were calculated across the Los Angeles metropolitan area, which includes Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. The total FFCO₂ emissions for the Los Angeles metropolitan area, which covers the complete geographic extent of the previously mentioned five counties, were calculated to be approximately 53.4±5.9 MMT CO_{2e}/year, with transportation emissions accounting for approximately 50.4 percent of these emissions (Gurney et al. 2019). Los Angeles County contributed approximately 55 percent of the total FFCO₂ emissions, followed by San Bernardino, Orange, Riverside, and Ventura counties. These results are consistent with SCAG estimates of GHG emissions for 2019 (see **Table 3.8-7, Greenhouse Gas Emissions All On-Road and Other Transportation Sources by County (CO_{2e})**), later in this document. It should be noted that the 2011 FFCO₂ estimates does not include Imperial County, which, according to Table 3.8-7, in 2019 contributed approximately 1.7 percent of the regional total transportation GHG emissions. Therefore, these results are representative of the SCAG region (Gurney et al. 2019).

GOODS MOVEMENT

As discussed in Section 3.17, *Transportation*, goods movement includes trucking, rail freight, air cargo, marine cargo, and both domestic and international freight, the latter entering the country via the seaports, airports, and the international border with Mexico. Additionally, many cargo movements are intermodal, for example, sea to truck, sea to rail, air to truck, or truck to rail. The goods movement system includes not only highways, railroads, sea lanes, and airways, but also intermodal terminals, truck terminals, railyards, warehousing, freight consolidation/de-consolidation terminals, freight forwarding, package express, customs inspection stations, truck stops, and truck queuing areas.

SCAG's plans for goods movement are consistent with executive orders from the governor that directs MPOs to integrate climate change policies to support the State's effort to reduce per capita GHG emissions and combat the effects of climate change. As further discussed below in Section 3.8.2, *Regulatory Framework*, under the discussion of State regulations, a number of Executive Orders Including Executive Orders: S-3-05, B-16-12, B-32-15, B-30-15 and B-55-18 support reducing GHG from the goods movement sector by calling for a coordinated approach to address the detrimental air quality effects of GHGs, supporting the rapid commercialization of zero emission vehicles and setting a 2050 GHG emissions reduction goal for the transportation sector to achieve 80 percent less emissions than 1990 levels, working toward achieving GHG reduction targets with the California Sustainable Freight Action Plan that establishes clear targets to improve freight efficiency, transitioning to zero-emission technologies and increasing competitiveness of California's freight system, supporting efforts towards meeting the interim statewide GHG emission reduction target of at least 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050, setting a framework for a new state goal to achieve carbon neutrality as soon as possible, but no later than 2045, and achieving and maintain net negative emissions thereafter, respectively.

PUBLIC HEALTH

The changing climate's effect on temperature, air quality, wildfires, and droughts will threaten the health and wellbeing of everyone in the SCAG region. Climate change threatens the water supply, air quality, and leads to more extreme heat days, drought, and sea level rise.

Extreme heat days are days in which the temperature exceeds the 98th percentile of maximum temperature for a given location. Extreme weather conditions, particularly extreme heat days, result in adverse outcomes for human health. Heat-induced illnesses include heat stroke, heat exhaustion, dehydration, and premature death from cardiovascular or respiratory disease. The effects of extreme heat days are further exacerbated by the urban heat island effects, which is caused by dense urban areas that have more buildings, pavement, and dark surfaces with less greenery and green spaces.

As a result of extreme heat days there may be longer and more severe droughts. Extreme heat can lead to excessive drying of soil and vegetation as well as melting of California's Sierra Nevada snowpack.

Climate change can also lead to sea level rise. Orange County has the greatest risk for inundation within the SCAG region, with 3.6 percent of the population in an inundation zone. Los Angeles and Ventura Counties have 1.6 percent and 0.17 percent, respectively, of their county population living within inundation zones. Sea level rise can lead to flooding in these areas and can create important health consequences such as contaminating drinking water or respiratory issues from mold in flood-damaged homes.

ONGOING GHG EMISSION REDUCTION AND ADAPTION STRATEGIES IN THE SCAG REGION

Climate change affects natural and human systems globally. Climate mitigation strategies include reducing or sequestering GHG emissions, while climate adaptation is preparing for the unavoidable impacts from climate change. Climate mitigation strategies include, but are not limited to (Energy + Environmental Economics 2020):

- Increasing energy efficiency and electricity in buildings for heating and water heating
- Increasing building electrification
- Increasing transportation electrification and deployment of battery-electric vehicles

- Increasing zero-carbon electricity and renewable energy
- Increasing carbon dioxide removal (CDR), including carbon sinks in natural and working lands
- Increasing negative emissions technologies (NETs) (e.g., biorefining with carbon capture storage and direct air capture)
- Increasing reliance on low-carbon (or zero carbon) liquid and/or gaseous fuels across all sectors of the economy (buildings, industry, transportation, and electricity)
- Increasing energy efficiency for all fuels in industrial and agriculture energy use
- Promoting active transportation
- Increasing transit options
- Improving waste management

Climate adaptation solutions would be long term and require a shift in thinking on how communities are designed. Adaptation strategies include, but are not limited to (CARB 2015):

- Using scarce water more efficiently
- Adapting building codes to future climate conditions and extreme weather events
- Building flood defenses and raising the levels of levees
- Developing drought tolerant crops
- Implementing urban tree planting and reforestation
- Setting aside land corridors for species migration
- Increasing collaboration on climate preparedness strategies among public agencies

Multiple jurisdictions in the SCAG region have taken action to address climate change. After assessing the climate vulnerabilities distinct to their community, these jurisdictions formulate a plan to move forward to minimize the impacts of these vulnerabilities. These actions take the form of climate action plans, general plan policies, GHG reduction plans, sustainability plans, and ordinances (CARB 2022c). SCAG has undertaken several planning efforts including studying adaptation strategies and assisting jurisdictions in developing Climate Action Plans.

SCAG also presents annual Sustainability Awards to recognize exemplary planning projects that support the core principles of mobility, livability, prosperity, and sustainability (SCAG 2023a). As shown in **Table 3.8-5, SCAG Sustainability Award Recipients (2021–2023)**, SCAG awarded Sustainability Awards to six planning projects. In both 2022 and 2023, SCAG awarded Sustainability Awards to seven planning projects each year (visit the SCAG Sustainability Award Recipients website for a full list of past Sustainability Awards planning projects and associated recipient organizations) (SCAG 2023a).

TABLE 3.8-5 SCAG Sustainability Award Recipients (2021–2023)

YEAR	PLANNING PROJECT	ORGANIZATION
2021	• Santa Ana Arts Collective (SAAC) Affordable Housing and Adaptive Reuse Community	• City of Santa Ana
	• San Pablo Avenue Streetscape Project	• City of Palm Desert
	• Driving the Future of Hydrogen	• Sunline Transit Agency
	• Adopt-A-Lot Program Hydrogen	• Kounkuey Design Initiative and the City of Los Angeles
	• Isla de Los Angeles development	• Clifford Beers Housing Inc.
	• The San Bernardino Valley Water Conservation District	• Upper Santa Ana River Wash Habitat Conservation Plan
2022	• Volvo Low Impact Green Heavy Transport (LIGHTS) project	• South Coast Air Quality Management District & Volvo Trucks North America
	• Riverside Pedestrian Target Safeguarding Plan, Active Transportation Plan, Complete Streets Ordinance and Trails Master Plan (PACT)	• City of Riverside
	• Metrolink Trains Run on Fossil-Free Fuel	• Southern California Regional Rail Authority (Metrolink)
	• PlanRC – City of Rancho Cucamonga General Plan Update	• City of Rancho Cucamonga
	• City Parcel/2C Ranch Habitat Restoration Project	• Orange County Transportation Authority, in Partnership with the City of San Juan Capistrano
	• Community Grants Program	• Port of Long Beach
	• Lotus Living Tiny Home Project	• City of El Centro
	• Agricultural Worker Housing Ordinance	• Ventura County
2023	• Recycled Water Collaboration	• City of Rialto and the Inland Empire Utility Agency (IEUA)
	• Envision San Jacinto	• City of San Jacinto
	• City of San Bernardino Clean Fleet Project	• City of San Bernardino
	• City of Lynwood Urban Bike Trail	• City of Lynwood
	• Pacoima Cool Community Project	• City of Pacoima
	• Legacy Square	• City of Santa Ana
	• Volvo Low Impact Green Heavy Transport (LIGHTS) project	• South Coast Air Quality Management District & Volvo Trucks North America

Source: SCAG 2023a

3.8.2 REGULATORY FRAMEWORK

INTERNATIONAL

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

The World Meteorological Organization (WMO) and United Nations Environmental Program (UNEP) established the IPCC in 1988. The goal of the IPCC is to evaluate the risk of climate change caused by human activities. Rather than performing research or monitoring climate, the IPCC relies on peer-reviewed and published scientific literature to make its assessment. While not a regulatory body, the IPCC assesses information (i.e., scientific literature) regarding human-induced climate change and the impacts of human-induced climate change and recommends options to policy makers for the adaptation and mitigation of climate change. The IPCC reports its evaluations in special reports called assessment reports. The latest assessment report (i.e., Sixth Assessment Report, consisting of three working group reports and a synthesis report based on the first three reports) was published in 2023. In its 2023 report, the IPCC stated that global surface temperature increases since 1970 have increased faster than in any other 50-year period over at least the last 2,000 years and human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming (IPCC 2023).

PARIS ACCORD

The most recent international climate change agreement was adopted at the United Nations Framework Convention on Climate Change in Paris in December 2015 (the “Paris Accord”) (United Nations 2015). In the Paris Accord, the United States set its intended nationally determined contribution to reduce its GHG emissions by 26 to 28 percent below its 2005 level in 2025 and to make best efforts to reduce its emissions by 28 percent. These targets were set with the goal of limiting global temperature rise to below 2 degrees Celsius and getting to the 80 percent emission reduction by 2050.

In June 2017, the U.S. announced its intent to withdraw from the Paris Accord and officially left the Paris Agreement on November 4, 2020 (The White House 2017b). However, on January 20, 2021, the U.S. reentered the Paris Agreement (The White House 2021).

In an effort to reach the goals set by the Paris Accord, over 10,000 cities and local governments from 138 countries across the world formed the Global Covenant of Mayors (GcoM) with the goal of collectively reducing 2.3 billion tons of CO₂ emissions per year by 2030 (GcoM 2023a). Within the United States, 182 cities have joined GcoM. Many of these cities are in the SCAG region, including Los Angeles, Lancaster, Long Beach, Manhattan Beach, Santa Monica, West Hollywood, and Palm Springs (GcoM 2023b).

FEDERAL

GLOBAL CHANGE RESEARCH ACT (1990)

In 1990, Congress passed and the President signed Public Law 101-606, the Global Change Research Act (Global Change Research Act 1990). The purpose of the legislation was: “... to require the establishment of a United States Global Change Research Program aimed at understanding and responding to global change, including the cumulative effects of human activities and natural processes on the environment, to promote discussions towards international protocols in global change research, and for other purposes.” To that end, the Global Change Research Information Office was established in 1991 to serve as a clearinghouse of information. The Act requires

a report to Congress every four years on the environmental, economic, health and safety consequences of climate change; however, the first and only one of these reports to date, the National Assessment on Climate Change, was not published until 2000. In February 2004, operational responsibility for GCRIO shifted to the U.S. Climate Change Science Program.

SUPREME COURT RULING

The U.S. Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*, 127 S.Ct. 1438 (2007), that carbon dioxide and other greenhouse gases are pollutants under the federal Clean Air Act, which the U.S. Environmental Protection Agency (USEPA) must regulate if it determines they pose an endangerment to public health or welfare.

USEPA ENDANGERMENT FINDING

On December 7, 2009, the USEPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act (42 USC Section 7521) (USEPA 2023a):

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed GHGs (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

FEDERAL CLEAN AIR ACT

The USEPA is responsible for implementing federal policy to address GHGs. The U.S. Supreme Court ruled in *Massachusetts v. Environmental Protection Agency*, 127 S.Ct. 1438 (2007), that CO₂ and other GHGs are pollutants under the federal Clean Air Act, which the USEPA must regulate if it determines they pose an endangerment to public health or welfare. In December 2009, USEPA issued an endangerment finding for GHGs under the federal Clean Air Act, setting the stage for future regulation.

The Federal Government administers a wide array of public-private partnerships to reduce the GHG intensity generated in the United States. These programs focus on energy efficiency, renewable energy, CH₄ and other non-CO₂ gases, agricultural practices, and implementation of technologies to achieve GHG reductions. USEPA implements numerous voluntary programs that contribute to the reduction of GHG emissions. These programs (e.g., the ENERGY STAR labeling system for energy-efficient products) play a significant role in encouraging voluntary reductions from large corporations, consumers, industrial and commercial buildings, and many major industrial sectors.

ENERGY POLICY ACT (EPACT); ENERGY POLICY ACT; ENERGY INDEPENDENCE AND SECURITY ACT

Refer to Section 3.6, *Energy*, for a detailed discussion of these regulations.

USEPA REPORTING RULE

The USEPA adopted a mandatory GHG reporting rule in September 2009 (USEPA 2023d). The rule would require suppliers of fossil fuels or entities that emit industrial greenhouse gases, manufacturers of vehicles and engines,

and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to the USEPA beginning in 2011 (covering the 2010 calendar year emission). Vehicle and engine manufacturers were required to begin reporting GHG emissions for model year 2011.

FUEL ECONOMY STANDARDS

On September 15, 2009, the National Highway Traffic Safety Administration (NHTSA) and USEPA announced a proposed joint rule that would explicitly tie fuel economy to GHG emissions reductions requirements. The proposed new CAFÉ Standards (DOT 2009) would cover automobiles for model years 2012 through 2016 and would require passenger cars and light trucks to meet a combined, per mile, carbon dioxide emissions level. It was estimated that by 2016, this GHG emissions limit could equate to an overall light-duty vehicle fleet average fuel economy of as much as 35.5 mpg. The proposed standards would require model year 2016 vehicles to meet an estimated combined average emission level of 250 grams of carbon dioxide per mile under USEPA's GHG program.

On November 16, 2011, USEPA and NHTSA issued a joint proposal to extend the national program of harmonized GHG and fuel economy standards to model year 2017 through 2025 passenger vehicles. In August 2012, President Obama finalized standards that will increase fuel economy to the equivalent of 54.5 mpg for cars and light-duty trucks by model year 2025.

On January 12, 2017, USEPA Administrator Gina McCarthy signed her determination to maintain the GHG emissions standards for model years 2022–2025 vehicles. Her final determination found that automakers are well positioned to meet the standards at lower costs than previously estimated (USEPA 2023e).

On March 15, 2017, the new USEPA Administrator Scott Pruitt and Department of Transportation Secretary Elaine Chao announced that USEPA intended to reconsider the final determination, issued on January 12, 2017, that recommended no change to the GHG standards for light-duty vehicles for model years 2022–2025 (USEPA 2023e).

On April 2, 2018, the Administrator signed the Mid-term Evaluation Final Determination, which finds that the model year 2022–2025 greenhouse gas standards are not appropriate in light of the record before USEPA and, therefore, should be revised (USEPA 2023e).

On September 19, 2019, under the Safer, Affordable, Fuel-Efficient (SAFE) Vehicles Rule, which amended the CAFE standards and tailpipe CO₂ emissions standards for passenger cars and light trucks and establishes new standards covering model years 2021–2026 (USEPA 2020). These standards set a combined fleet wide average of 36.9 to 37 for the model years affected (NHTSA, undated).

In February 2022, the USEPA the Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards went into effect (Federal Register 2021). This final rule revises current GHG standards beginning with model year 2023–2026 vehicles, and it established the most stringent GHG standards ever set for the light-duty vehicle sector that are expected to result in average fuel economy label values of 40 mpg, while the standards they replace (the SAFE rule standards) would achieve only 32 mpg in model year 2026 vehicles (USEPA 2021b).

HEAVY-DUTY VEHICLE PROGRAM

In May 2010, former President Barack Obama issued a Presidential Memorandum Regarding Fuel Efficiency Standards requesting that USEPA and NHTSA take additional coordinated steps to produce a new generation of clean vehicles (The White House 2010). In response, USEPA and NHTSA adopted regulations governing Medium-

and Heavy-Duty Greenhouse Gas Emissions and Fuel Efficiency (Title 40, Code of Federal Regulations, Chapter I) on September 15, 2011 (most recently amended on August 16, 2013), to establish the first fuel efficiency requirements for medium- and heavy-duty vehicles beginning with the model year 2014 through model year 2018. On February 18, 2014, the President directed USEPA and NHTSA to set the next round of fuel efficiency standards for Medium- and heavy-duty vehicles (beyond model year 2018) that will build on the existing standards to further reduce fuel consumption through the application of advanced cost-effective technologies and continue to improve the efficiency of moving goods across the United States. In October 2016, USEPA and NHTSA adopted Phase 2 GHG and fuel efficiency standards for medium- and heavy-duty engines and vehicles (USEPA 2023b).

CLEAN POWER PLAN

In 2015, USEPA published the Clean Power Plan (80 Fed. Reg. 64661, October 23, 2015) (USEPA 2023f). The Clean Power Plan sets achievable standards to reduce CO₂ emissions by 32 percent from 2005 levels by 2030. This Plan establishes final emissions guidelines for states to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired electric generating units (EGUs). Specifically, USEPA is establishing (1) CO₂ emission performance rates representing the best system of emission reduction (BSER) for two subcategories of existing fossil-fuel-fired EGUs, fossil-fuel-fired electric utility steam generating units and stationary combustion turbines; (2) state-specific CO₂ goals reflecting the CO₂ emission performance rates; and (3) guidelines for the development, submittal and implementation of state plans that establish emission standards or other measures to implement the CO₂ emission performance rates, which may be accomplished by meeting the state goals. This final rule would continue progress already under way in the United States to reduce CO₂ emissions from the utility power sector. On February 9, 2016, the Supreme Court (Order No. 15A773) stayed implementation of the Clean Power Plan pending judicial review. As directed by Executive Order on Energy Independence (The White House 2017a), the USEPA officially repealed the Clean Power Plan in June 2019 and issued the final Affordable Clean Energy rule in its place (USEPA 2019a).

AFFORDABLE CLEAN ENERGY RULE

The USEPA issued the Affordable Clean Energy (ACE) rule on June 19, 2019, in order to replace the Clean Power Plan. The ACE rule establishes emissions guidelines for states to use when developing plans to limit carbon dioxide at coal-fired power plants. Specifically, the ACE rule aims at improving the heat rate as the best system of emissions reductions for carbon dioxide at coal-fired power plants and these improvements can be made at individual facilities. States will have three years to submit plans. The USEPA estimates that the ACE rules will result in a reduction of CO₂ emissions from the electricity sector by as much as 35 percent below 2005 levels by 2030 (USEPA 2019a).

FEDERAL HIGHWAY ADMINISTRATION'S CLIMATE CHANGE AND EXTREME WEATHER VULNERABILITY ASSESSMENT FRAMEWORK

Published in December 2012, the Climate Change and Extreme Weather Vulnerability Assessment Framework is a guidance document for transportation agencies to assess their vulnerability to climate change and extreme weather events. Objectives for a vulnerability assessment may include siting new assets in areas less vulnerable to climate change, educating staff regarding overall climate risks to the agency's transportation system, or informing the development of adaptation strategies. Based on these objectives, an agency can then select and characterize relevant assets and identify climate variables for study. The vulnerability assessment is an iterative process; information gathered on assets may inform climate information needs and vice versa (DOT 2012).

EXECUTIVE ORDER 13990

On January 20, 2021, President Joe Biden signed Executive Order 13990, “Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis,” which calls for among other items: Immediate Review of Agency Actions Taken Between January 20, 2017, and January 20, 2021; accounting for the Benefits of Reducing Climate Pollution; and revoking Executive Order 13783 of March 28, 2017 (Promoting Energy Independence and Economic Growth).

CLIMATE POLLUTION REDUCTION GRANTS

Pursuant to Section 60114 of the Inflation Reduction Act (H.R. 5376, as amended by the Senate), the USEPA’s Climate Pollution Reduction Grants (CPRG) Program will provides funding of \$250 million for noncompetitive planning grants and \$4.6 billion for competitive implementation grants to states, local governments, tribes, and territories to develop and implement plans for reducing greenhouse gas emissions and other harmful air pollution. In August 2023, California is submitting its workplan for the CPRG planning grants outlining three proposed deliverables over four years: (1) Priority Climate Action Plan; (2) Comprehensive Climate Action Plan; (3) Status Report that reflects actions and emissions reductions statewide (CARB 2023e). With the CPRG, California sees an opportunity to not only leverage funding for the specific intended and authorized purposes of this program, but also to deliver the steep GHG reductions needed to contribute to the United States commitment under the Paris Accord (CARB 2023f).

STATE

COASTAL ACT

The California Coastal Act of 1976 directs the California Coastal Commission (Coastal Commission) to protect and enhance the State’s coastal resources (California Public Resources Code Division 20). The Coastal Commission has planning, regulatory, and permitting authority over all development within the coastal zone, whose landward boundary varies with location. The Act governs coastal hazards for new development, mandating that it minimize risks to life and property in areas of high flood. New development must be located such that it will not be subject to erosion or stability hazard over the course of its design life, and construction of protective devices (e.g., seawalls, revetment) that substantially alter natural land forms along bluffs and cliffs are not permitted (Section 30253).

The Coastal Commission’s mandate extends to climate change, including sea level rise; however, the agency is currently assessing how best to address sea level rise and other challenges resulting from climate change. The Coastal Commission partners with local governments to form Local Coastal Programs (LCPs), transferring the power to regulate development within the coastal zone to cities and counties. Within the Bay Area, all of San Mateo, San Francisco, Marin, and Sonoma counties, along with the cities of Daly City, Pacifica and Half Moon Bay have certified LCPs. Any changes in the Coastal Commission’s policies and/or regulations with respect to sea level rise may ultimately require revisions to LCPs.

The Coastal Commission bases its standard of review for Coastal Development Permits on the Chapter 3 policies of the California Coastal Act. Sections 30235, 30236, and 30253 focus on coastal hazards and shoreline development, and provide the primary basis for how the Coastal Commission considers sea level rise impacts on proposed projects. These policies requiring protection of life, property, and coastal resources are complimented by other statutes such as AB 2800, SB1 2030(e), and SB 743 directing the transportation system to mitigate, minimize, and adapt to climate change.

Furthermore, in 2021, SB 1 (Coastal resources: sea level rise) was signed into law by Governor Newsom which added several provisions to the Coastal Act which mandates a more explicit consideration of sea level rise (Sections 30270 and 30001.5 (f)) which is of direct relevance for the transportation system.

- Coastal Act Section 30270 states: The commission shall take into account the effects of sea level rise in coastal resources planning and management policies and activities in order to identify, assess, and, to the extent feasible, avoid and mitigate the adverse effects of sea level rise.
- Coastal Act Section 30001.5 (f) states: the basic goals of the state for the coastal zone are to [...] Anticipate, assess, plan for, and, to the extent feasible, avoid, minimize, and mitigate the adverse environmental and economic effects of sea level rise within the coastal zone.
- Coastal Act Section 30235 states: Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.
- Coastal Act Section 30236 states: Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.
- Coastal Act Section 30253 states: New development [defined in Section 30106] shall: (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard; (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs; (c) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Board as to each particular development; (d) Minimize energy consumption and vehicle miles traveled; (e) Where appropriate, protect special communities and neighborhoods that, because of their unique characteristics, are popular visitor destination points for recreational uses.

SENATE BILL 1078, SENATE BILL 107, EXECUTIVE ORDER S-14-08, EXECUTIVE ORDER S-21-09, AND SENATE BILL 100

On September 12, 2002, Governor Gray Davis signed Senate Bill (SB) 1078 (Chapter 516, Statutes of 2002) requiring California to generate 20 percent of its electricity from renewable energy by 2017. SB 107 (Chapter 464, Statutes of 2006), signed by the Governor on September 26, 2006, changed the due date for this goal from 2017 to 2010. On November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order S-14-08, which established a Renewables Portfolio Standard goal for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020 (Office of the Governor, Arnold Schwarzenegger 2008). Increased use of renewable energy sources will decrease California's reliance on fossil fuels, reducing emissions of GHGs from the energy sector. In April 2011, SB X1-2 required that all electricity retailers adopt the new RPS goals providing 20 percent renewable sources by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020.

Executive Order S-21-09 directs CARB to adopt regulations to increase California's Renewables Portfolio Standard (RPS) to 33 percent by 2020 (California State Library 2009). The target was signed into law as SB 2 by Governor Brown in April 2011. This builds upon SB 1078 (2002), which established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006), which advanced the 20 percent deadline to 2010. SB 350 of 2015 (Chapter 547, Statutes of 2015) increased the renewable portfolio standard to 50 percent by the year 2030. In September 2018, SB 100 was approved by Governor Brown. SB 100 requires an updated goal of 60 percent renewable energy resources by the year 2030, and 100 percent zero-carbon energy by the year 2045.

ASSEMBLY BILL 1493

In September 2002, AB 1493 (Chapter 200, Statutes of 2002) (referred to as Pavley I) (Assembly Bill 1493 2002) was enacted, requiring the development and adoption of regulations to achieve "the maximum feasible reduction of greenhouse gases" emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the state by January 1, 2005. Pavley I took effect for model years starting in 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" will cover 2017 to 2025 (13 Cal. Code Regs. Section 1900 et seq.) (CARB 2022d). Fleet average emission standards were to reach a 22 percent reduction by 2012 and 30 percent by 2016.

On March 30, 2020, the SAFE Rule was finalized and published in the Federal Register, commencing a review period (see Section, 3.8.2, *Regulatory Framework*, under the discussion of federal fuel economy standards for additional details regarding the SAFE Rule). Subsequent legal challenges from a coalition of states, including California, and private industry groups were issued. On September 27, 2019, the USEPA withdrew the waiver it had previously provided to California for the State's GHG and zero-emission vehicle (ZEV) programs under Section 209 of the Clean Air Act (84 FR 5130). The withdrawal of the waiver was effective November 26, 2019. In response, several states, including California, filed a lawsuit challenging the withdrawal of the USEPA waiver (United States District Court for the District Court of Columbia, *State of California vs. Chao*, Case 1:19-cv-02826, 2019). On March 14, 2022, the USEPA issued a notice of decision to reinstate California's Clean Air Act waiver for its Advanced Clean Car regulations (Federal Register 2022).

SENATE BILL 1

SB 1 (2006) (Chapter 132, Statutes of 2006) set a goal to install 3,000 megawatts of new solar capacity by 2017, moving the state toward a cleaner energy future and helping lower the cost of solar systems for consumers. The "Million Solar Roofs" Program is a ratepayer-financed incentive program aimed at transforming the market for rooftop solar systems by driving down costs over time. It provides up to \$3.3 billion in financial incentives that decline over time.

Furthermore, as stated above in 2021, SB 1 (Coastal resources: sea level rise) was signed into law by Governor Newsom, which added several provisions to the Coastal Act which mandates a more explicit consideration of sea level rise (Sections 30270 and 30001.5(f)) which is of direct relevance for the transportation system (see Section 3.8.2, *Regulatory Framework*, under Coastal Act for additional details).

SENATE BILL 253

SB 253, also known as the Climate Corporate Data Accountability Act, was signed October 14, 2023, requires companies with greater than \$1 billion in annual revenues to file annual reports publicly disclosing their scope 1, 2 and 3 emissions (direct, indirect, and supply chain greenhouse gas emissions) to the California Air Resources

Board and verified by an independent and experienced third-party provider. SB 253 requires these companies to report on their direct and indirect emissions from energy consumption for the previous year (scope 1 and 2 GHG emissions, respectively) starting in 2026. SB 253 requires these companies to also to report on their scope 3 emissions (their supply chain greenhouse gas emissions) for the previous year in addition to their scope 1 and 2 emissions starting in 2027. Companies must conform to the Greenhouse Gas Protocol (GHG Protocol) standards and guidance to comply with SB 253.

SENATE BILL 261

SB 261, also known as the Climate-Related Financial Risk Act, signed October 14, 2023, requires companies with \$500 million in annual revenues to prepare biennial reports disclosing climate-related financial risk and measures they have adopted to reduce and adapt to that risk, with the first report due by January 1, 2026. The climate-related financial risk reports disclose climate-related financial risks consistent with recommendations from the Task Force on Climate-Related Financial Disclosure (TCFD) framework.

ASSEMBLY BILL 43

AB 43, signed October 7, 2023, requires CARB, in consultation with relevant stakeholders including, but not limited to, the California Building Standards Commission, the Department of Housing and Community Development, and the State Energy Resources Conservation and Development Commission, to develop a framework for measuring the average carbon intensity of the materials used in the construction of new buildings, including those for residential uses by December 31, 2026. CARB is also required to develop by December 31, 2028, a comprehensive strategy for the state's building sector to achieve a 40 percent net reduction in greenhouse gas emissions of building materials as soon as possible, but no later than December 31, 2035.

SENATE BILL 1368

SB 1368, signed September 29, 2006, is a companion bill to AB 32, which requires the CPUC and the CEC to establish GHG emission performance standards for the generation of electricity. These standards also generally apply to power that is generated outside of California and imported into the State. SB 1368 provides a mechanism for reducing the emissions of electricity providers, thereby assisting CARB to meet its mandate under AB 32

ASSEMBLY BILL 32

The State of California has implemented numerous laws targeting GHG emissions. Chief among these is the California Global Warming Solutions Act of 2006 (AB 32) (Health & Safety Code Section 38500 et seq.) (AB 32 2006). AB 32 represents the first enforceable statewide program to limit GHG emissions from all major sectors with penalties for noncompliance. AB 32 requires the State of California to reduce its emissions to 1990 levels by 2020 and establishes key deadlines for certain actions the state must take to achieve the reduction target. The first action under AB 32 resulted in CARB's adoption of a report listing three specific early action GHG reduction measures on June 21, 2007. On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32 (CARB 2007a).

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 MMTCO_{2e}, since updated to 431 MMTCO_{2e} (CARB 2017a). The inventory indicated that in 1990, transportation, with 35 percent of the state's total emissions, was the largest single sector generating carbon dioxide; followed by industrial emissions, 24

percent; imported electricity, 14 percent; in-state electricity generation, 11 percent; residential use, 7 percent; agriculture, 5 percent; and commercial uses, 3 percent (figures are based on the 1990 inventory). AB 32 does not require individual sectors to meet their individual 1990 GHG emissions inventory; the total statewide emissions are required to meet the 1990 target by 2020.

In addition to the 1990 emissions inventory, CARB also adopted regulations requiring the mandatory reporting of GHG emissions for large facilities on December 6, 2007 (17 Cal. Code Regs. Section 95100 et seq.) (CARB 2007b). The mandatory reporting regulations require annual reporting from the largest facilities in the state, which account for approximately 94 percent of GHG emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 tons of CO₂ each year from on-site stationary combustion sources. Affected facilities began tracking their emissions in 2008, and reported them beginning in 2009, with a phase-in process to allow facilities to develop reporting systems and train personnel in data collection. Emissions for 2008 could be based on best available emission data. Beginning in 2010, however, emissions reporting requirements became more rigorous and are subject to third-party verification. Verification take place annually or every three years, depending on the type of facility.

SENATE BILL 32 AND ASSEMBLY BILL 197

On September 8, 2016, California signed into law SB 32 and AB 197 (the combined bills are herein referred to as SB 32), which adds Section 38566 to the Health and Safety Code and requires a commitment to reducing statewide GHG emissions by 2020 to 1990 levels and by 2030 to at least 40 percent less than 1990 levels. SB 32 was passed with companion legislation AB 197 Chapter 250, Statutes of 2016), which provides greater legislative oversight of CARB's GHG regulatory programs, requires CARB to account for the social costs of GHG emissions, and establishes a legislative preference for direct reductions of GHG emissions.

CLIMATE CHANGE SCOPING PLANS

AB 32 requires CARB to prepare a Climate Change Scoping Plan for achieving the maximum technologically feasible and cost-effective GHG emission reduction by 2020 and to update this plan at least every five years (HSC Sections 38561(a) and (h)). SB 32 codified the State GHG reduction target for 2030 and is included in the more recently updated Climate Change Scoping Plans.

2008 CLIMATE CHANGE SCOPING PLAN

In December 2008, CARB adopted a Climate Change Scoping Plan (initial Scoping Plan) (CARB 2008) indicating how emission reductions will be achieved from significant sources of GHGs via regulations, market mechanism, and other actions (CARB 2013b).

The 2008 Climate Change Scoping Plan proposed a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (CARB 2008). The 2008 Climate Change Scoping Plan had a range of GHG reduction actions which included direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms, such as a cap-and-trade system, and an AB 32 implementation fee to fund the program.

The 2008 Climate Change Scoping Plan called for a “coordinated set of solutions” to address all major categories of GHG emissions. Transportation emissions were addressed through a combination of higher standards for vehicle fuel economy, implementation of the Low Carbon Fuel Standard (LCFS), and greater consideration to reducing trip length and generation through land use planning and transit-oriented development. Buildings, land use, and industrial operations were encouraged and, sometimes, required to use energy more efficiently. Utility energy providers were required to include more renewable energy sources through implementation of the Renewables Portfolio Standard.³ Additionally, the 2008 Climate Change Scoping Plan emphasized opportunities for households and businesses to save energy and money through increasing energy efficiency. It indicates that substantial savings of electricity and natural gas will be accomplished through “improving energy efficiency by 25 percent.”

The 2008 Climate Change Scoping Plan identified several specific issues relevant to development projects, including:

- The potential of using the green building framework as a mechanism, which could enable GHG emissions reductions in other sectors (i.e., electricity, natural gas), noting that:

A Green Building strategy will produce greenhouse gas savings through buildings that exceed minimum energy efficiency standards, decrease consumption of potable water, reduce solid waste during construction and operation, and incorporate sustainable materials. Combined, these measures can also contribute to healthy indoor air quality, protect human health, and minimize impacts to the environment.

- The importance of supporting the Department of Water Resources’ work to implement the Governor’s objective to reduce per capita water use by 20 percent by 2020. Specific measures to achieve this goal include water use efficiency, water recycling, and reuse of urban runoff. The Climate Change Scoping Plan notes that water use requires significant amounts of energy, including approximately one-fifth of Statewide electricity.
- Encouraging local governments to set quantifiable emission reduction targets for their jurisdictions and use their influence and authority to encourage reductions in emissions caused by energy use, waste and recycling, water and wastewater systems, transportation, and community design.

As required by HSC Division 25.5, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions reduction target for 2020. The 2020 emissions reduction target was originally set at 427 MMTCO_{2e} using the GWP values from the IPCC SAR. Forecasting the emissions that would occur in 2020 if no actions are taken was necessary to assess the scope of the reductions California must make to return to the 1990 emissions level by 2020 as required by AB 32. CARB originally defined the “business-as-usual,” or BAU, scenario as emissions in the absence of any GHG emission reduction measures discussed in the 2008 Climate Change Scoping Plan, as approximately 596 MMTCO_{2e} (using GWP values from the IPCC SAR). For example, in further explaining CARB’s BAU methodology, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards. Therefore, under these original projections, the State would have had to reduce its 2020 BAU emissions by 28.4 percent to meet the 1990 target of 427 MMTCO_{2e}.

³ For a discussion of Renewables Portfolio Standard, refer to subsection California Renewables Portfolio Standard.

2014 CLIMATE CHANGE SCOPING PLAN UPDATE

The First Update to the Climate Change Scoping Plan (2014 Scoping Plan) was approved by CARB in May 2014 and built upon the initial Climate Change Scoping Plan with new strategies and recommendations (CARB 2014). In 2014, CARB revised the target using the GWP values from the IPCC AR4 and determined the 1990 GHG emissions inventory and 2020 GHG emissions limit to be increased to 431 MMTCO_{2e}. CARB also updated the State's 2020 BAU emissions estimate to account for the effect of the 2007–2009 economic recession, new estimates for future fuel and energy demand, and the reductions required by regulation that had recently been adopted for motor vehicles and renewable energy. CARB's projected Statewide 2020 emissions estimate using the GWP values from the IPCC AR4 was 509.4 MMTCO_{2e}. Therefore, under the First Update to the Climate Change Scoping Plan, the emission reductions necessary to achieve the 2020 emissions target of 431 MMTCO_{2e} would have been 78.4 MMTCO_{2e}, or a reduction of GHG emissions by approximately 15.4 percent, (down from 28.4 percent).

The stated purpose of the First Update was to "highlight... California's success to date in reducing its GHG emissions and lay... the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050" (CARB 2014, p. 4). The First Update found that California was on track to meet the 2020 emissions reduction mandate established by AB 32 and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the State realizes the expected benefits of existing policy goals (CARB 2014).

In conjunction with the First Update, CARB identified "six key focus areas comprising major components of the State's economy to evaluate and describe the larger transformative actions that will be needed to meet the State's more expansive emission reduction needs by 2050" (CARB 2014, p. 6). Those six areas are: (1) energy; (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure); (3) agriculture; (4) water; (5) waste management; and (6) natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of the 2050 reduction target.

Based on CARB's research efforts, it has a "strong sense of the mix of technologies needed to reduce emissions through 2050" (CARB 2014, p. 32). Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies.

The First Update discussed new residential and commercial building energy efficiency improvements, specifically identifying progress towards zero net energy buildings as an element of meeting mid-term and long-term GHG reduction goals. The First Update expressed CARB's commitment to working with the California Public Utilities Commission (CPUC) and California Energy Commission (CEC) to facilitate further achievements in building energy efficiency.

2017 CLIMATE CHANGE SCOPING PLAN UPDATE

In December 2017, CARB adopted California's 2017 Climate Change Scoping Plan (2017 Scoping Plan), which outlines the framework of action for achieving California's SB 32 2030 GHG target: a minimum of 40 percent reduction in GHG emissions by 2030 relative to 1990 levels. The 2030 target was intended to ensure that California remained on track to achieve the goal set forth by Executive Order B-30-15 to reduce statewide GHG emissions by 2050 to 80 percent below 1990 levels.

The 2017 Scoping Plan identified key sectors of the implementation strategy, which included improvements in low carbon energy, industry, transportation sustainability, natural and working lands, waste management, and water. Through a combination of data synthesis and modeling, CARB determined that the target statewide 2030 emissions limit is 260 MMTCO_{2e}, and that further commitments needed to be made to achieve an additional reduction of 50 MMTCO_{2e} beyond then-current policies and programs. Key elements of the 2017 Update included a proposed 20 percent reduction in GHG emissions from refineries and an expansion of the Cap-and-Trade program to meet the aggressive 2030 GHG emissions goal and ensure achievement of the 2050 limit set forth by E.O. B-30-15.

CARB's projected Statewide 2030 emissions took into account 2020 GHG reduction policies and programs (CARB 2017b). The 2017 Scoping Plan also addressed GHG emissions from natural and working lands of California, including the agriculture and forestry sectors. The majority of the reductions were identified to be from the continuation of the Cap-and-Trade regulation. Additional reductions were to be achieved from electricity sector standards (i.e., utility providers to supply 50 percent renewable electricity by 2030), doubling the energy efficiency savings at end uses. For the transportation sector, additional GHG reductions were to be achieved from the LCFS, implementing the short-lived GHG strategy (e.g., HCFs), and implementing the mobile source strategy and sustainable freight action plan. Implementation of mobile source strategies (cleaner technology and fuels) included the following:

- At least 1.5 million zero emission and plug-in hybrid light-duty electric vehicles by 2025
- At least 4.2 million zero emission and plug-in hybrid light-duty electric vehicles by 2030
- Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean Cars regulations
- Medium- and heavy-duty GHG Phase 2
- Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20 percent of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100 percent of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NO_x standard.
- Last Mile Delivery: New regulation that would result in the use of low NO_x or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for Class 3–7 last mile delivery trucks in California. This measure assumes ZEVs comprise 2.5 percent of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10 percent in 2025 and remaining flat through 2030.
- Further reduce vehicle miles traveled (VMT) through continued implementation of SB 375 and regional Sustainable Communities Strategies; forthcoming Statewide implementation of SB 743; and potential additional VMT reduction strategies not specified in the Mobile Source Strategy but included in the document "Potential VMT Reduction Strategies for Discussion."

The 2017 Update indicated that stronger SB 375 GHG reduction targets will enable the State to make significant progress toward this goal, but alone will not provide all of the VMT growth reductions needed. It noted that there is a "gap" between what SB 375 can provide and what is needed to meet the State's 2030 and 2050 goals. The 2017 Update recommended that local governments consider policies to reduce VMT, including: land use and community design that reduces VMT; transit-oriented development; street design policies that prioritize transit, biking, and walking; and increasing low carbon mobility choices, including improved access to viable and affordable public transportation and active transportation opportunities.

The alternatives in the Scoping Plan were designed to consider various combinations of the recommended programs, as well as consideration of a carbon tax in the event the Cap-and-Trade regulation were not continued. However, in July 2017, the California Legislature voted to extend the Cap-and-Trade regulation to 2030. The 2017 Scoping Plan discussed the role of local governments in meeting the State's GHG reductions goals because local governments have jurisdiction and land use authority related to: community-scale planning and permitting processes, local codes and actions, outreach and education programs, and municipal operations (CARB 2017b). Furthermore, the 2017 Scoping Plan noted that local governments may have the ability to incentivize renewable energy, energy efficiency, and water efficiency measures (CARB 2017b).

2022 SCOPING PLAN FOR ACHIEVING CARBON NEUTRALITY

CARB adopted the Final 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) in December 2022 (CARB 2022a) as the third update to the initial plan adopted in 2008. The 2022 Scoping Plan is the most comprehensive Scoping Plan developed to date and supersedes the 2017 Scoping Plan.⁴ It identifies a pathway for the state across economic sectors to achieve new targets for carbon neutrality by 2045 and to reduce anthropogenic GHG emissions to at least 85 percent below 1990 levels, while also assessing the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan (CARB 2017b). The 2022 Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts and major climate legislation and executive orders issued since adoption of the 2017 Scoping Plan to reduce GHGs and air pollution, while identifying new clean technologies and energy. Given the focus on carbon neutrality, the 2022 Scoping Plan also includes discussion for the first time of the natural and working lands sectors as sources for both sequestration and carbon storage, and as sources of emissions as a result of wildfires. The 2022 Scoping Plan includes the Scoping Plan Scenario, which describes the types of technologies and energy needed to drastically reduce GHG emissions from the AB 32 Inventory sectors to keep California on track to achieve the SB 32 GHG reduction target for 2030 and become carbon neutral no later than 2045. The Scoping Plan Scenario achieves the AB 1279 target of 85 percent below 1990 levels by 2045, but it identifies a need to accelerate the 2030 target to 48 percent below 1990 levels (see 2022 Scoping Plan for additional details) (CARB 2022a). AB 1279 is discussed in more detail below.

CARB's 2022 Scoping Plan also concludes that a per capita reduction of at least 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045 in light-duty VMT are needed to reduce overall transportation energy demand and meet the state's climate, air quality, and equity goals. However, the 2022 Scoping Plan explicitly recognizes that these targets are not regulatory requirements:

While CARB has included VMT reduction targets and strategies in the Scoping Plan and appendices, these targets are not regulatory requirements, but would inform future planning processes. CARB is not setting regulatory limits on VMT in the 2022 Scoping Plan; the authority to reduce VMT largely lies with state, regional, and local transportation, land use, and housing agencies, along with the Legislature and its budgeting choices.

Scoping Plan Appendix D (Local Actions) provides guidance for local jurisdictions, in particular for residential and mixed-use projects, to qualitatively evaluate and identify projects that are clearly consistent with the State's climate goals (see 2022 Scoping Plan for additional details) (CARB 2022a).

⁴ In litigation challenging the 2017 Scoping Plan, the Superior Court found that the issues were moot since the 2022 Scoping Plan superseded the 2017 Scoping Plan and the court could not order any appropriate remedy. See *The Two Hundred v. Cal. Air Resources Board*, Fresno Superior Court Case No. 18CECG01494, Order dated April 20, 2023.

Scoping Plan Appendix E (Sustainable and Equitable Communities) provides a Policy Framework to Advance Sustainable and Equitable Communities. Appendix E is directly relevant to SCSs and MPOs' implementation of SB 375 requirements on regional transportation planning. This policy framework looks to build more sustainable and equitable communities to help California meet the State's goal of achieving carbon neutrality no later than 2045 to prevent the most adverse impacts of climate change and building more inclusive and equitable places. Appendix E discusses opportunities for California to move away from a cars-first model and build communities and infrastructure that enable a wider range of access and mobility choices. Again, it is important to note that the per capita VMT reductions are not regulatory targets or requirements but could inform future policy and planning discussions.

Every sector of the economy in the state will need to begin to transition in this decade to meet these GHG reduction goals and achieve carbon neutrality no later than 2045 (see 2022 Scoping Plan for additional details) (CARB 2022a). The path forward is not dependent on one agency, one state, or even one country. However, the State can lead by engaging Californians and demonstrating how actions at the state, regional, and local levels of governments, as well as action at community and individual levels, can contribute to addressing the challenge.

ASSEMBLY BILL 811

AB 811 (2008) (Chapter 159, Statutes of 2008) authorizes California cities and counties to designate districts within which willing property owners may enter into contractual assessments to finance the installation of renewable energy generation and energy efficiency improvements that are permanently fixed to the property. These financing arrangements would allow property owners to finance renewable generation and energy efficiency improvements through low-interest loans that would be repaid as an item on the property owner's property tax bill.

SENATE BILL 375

SB 375 (Chapter 728, Sustainable Communities and Climate Protection Act of 2008), adopted in 2008, is a first-of-its-kind law to recognize the critical role of integrated land use planning, housing planning, and regional transportation planning to meet the State's climate goals. By coordinating these efforts, it is envisioned that vehicle congestion and travel can be reduced resulting in a corresponding reduction in emissions. SB 375 directed CARB to set regional targets to reduce GHG emissions for each of the State MPOs on a per capita basis. SB 375 requires that each MPO prepare a Sustainable Communities Strategy (SCS) that will reduce GHG emissions to achieve these regional targets.

SB 375 has three major components:

- Using the regional transportation planning process to achieve reductions in GHG emissions consistent with AB 32's goals.
- Offering California Environmental Quality Act (CEQA) incentives to encourage projects that are consistent with a regional plan that achieves emissions reductions.
- Coordinating the Regional Housing Needs Assessment (RHNA) process with the regional transportation planning process while maintaining local authority over land use decisions.

An SCS is a required component of the RTP. The SCS is a land use pattern for the region which, in combination with transportation policies and programs, strives to reduce emissions and helps meet CARB's targets for the

region. An alternative planning strategy (APS)⁵ must be prepared if the SCS is unable to reduce emissions and achieve the emissions reduction targets established by CARB. The APS to the SCS shows how the targets would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (e.g., general plans) are not required to be consistent with either the RTP or SCS. CARB updated GHG emission reduction targets on March 22, 2018; CARB set reduction targets for the SCAG region at 8 percent for 2020 and 19 percent for 2035 in GHG per capita emissions from light-duty passenger vehicles as compared to 2005. This was an update to the previous 2035 GHG per capita emissions reduction target of 13 percent (CARB 2023d).

In accordance with SB 375, CARB is required to update the regional GHG emissions reduction targets every eight years for each of the State MPOs with each MPO's timeframe for updating its RTP under federal law until 2050. The next SB 375 targets for MPOs will likely consider the 2022 Scoping Plan (see detailed discussion of 2022 Scoping Plan below). Pursuant to SB 375, CARB must exchange technical information with the Department of Transportation, MPOs, local governments, and affected air districts and engage in a consultative process with public and private stakeholders prior to updating these targets.

According to CARB, the 2018 SB 375 GHG emissions reduction targets for all of the state's MPOs would result in a statewide reduction of 19 percent (compared to 18 percent expected to result from the prior 2010 targets). However, the 2017 Scoping Plan identified a 25 percent GHG emissions reduction as being needed to meet the transportation-sector (light-duty vehicles) GHG emissions reduction goals. The difference between the 19 percent reduction resulting from CARB's 2018 SB 375 targets and the 25 percent necessary reduction is referred to in other various CARB documents as the "gap." The 2022 Scoping Plan does not identify new GHG reduction targets for light-duty vehicles but indicates that further action must be implemented in the transportation sector beyond phasing out combustion technology and producing cleaner fuels, i.e., reduction in VMT. CARB explains that managing total demand for transportation energy by reducing the miles people need to drive on a daily basis is also critical as the state aims for a sustainable transportation sector in a carbon neutral economy. Although GHG emissions are declining due to cleaner vehicles and fuels, rising VMT can offset the effective benefits of adopted regulations.⁶

SENATE BILL 743

SB 743 (Steinberg) was signed into law by Governor Jerry Brown on September 27, 2013, and encourages development of mixed-use, transit-oriented infill projects by (1) establishing new CEQA exemptions for transit-oriented developments located in Transit Priority Areas (TPAs) that are consistent with an adopted Specific Plan;

⁵ Pursuant to SB 375, for purposes of CEQA, APS shall not constitute a land use plan, policy, or regulation, and the inconsistency of a project with an APS shall not be a consideration in determining whether a project may have an environmental effect.

⁶ CARB has indicated that guidance with respect to how the aggressive VMT reduction targets in the 2022 Scoping Plan are to be achieved will be forthcoming (including updated SB 375 targets in 2026); SCAG has expressed concern regarding the documentation and support for CARB's 2022 Scoping Plan VMT reduction targets and that these targets may not be wholly achievable through SCS strategies. As evidenced in CARB's SB 150 report, achieving VMT reductions in California is difficult. The 2022 Scoping Plan relies on many of the same or similar strategies already included in the SCS, it is unclear whether implementation of the suggested strategies in Appendix E of the Scoping Plan would be sufficient to reach the VMT and GHG reduction targets in the 2022 Scoping Plan. See SCAG's June 24, 2022, letter to CARB re: Draft 2022 Climate Change Scoping Plan. See <https://www.arb.ca.gov/lists/com-attach/4427-scopingplan2022-AXICZwZmVGBVDANg.pdf>.

(2) eliminating the requirement to evaluate aesthetic and parking impacts in those targeted development areas; and (3) directing the OPR to develop an alternative metric to evaluate transportation-related impacts under CEQA.⁷

SB 743 directed OPR to identify appropriate criteria for the evaluation of transportation impacts for CEQA purposes. OPR selected VMT as the preferred CEQA transportation impact analysis metric and applied their discretion to require its use statewide. Vehicle level of service (LOS) and similar measures related to delay are not identified as appropriate metrics for determining the significance of transportation impacts under CEQA although they may still be appropriate for evaluation of projects as part of the planning process. The SB 743 guidance indicates that each jurisdiction throughout the state had until July 1, 2020, to adopt VMT as the metric for evaluation of transportation impacts under CEQA.

ASSEMBLY BILL 1279

AB 1279 establishes the policy of the state to achieve carbon neutrality as soon as possible, but no later than 2045; to maintain net negative GHG emissions thereafter; and to ensure that by 2045 statewide anthropogenic GHG emissions are reduced at least 85 percent below 1990 levels. The bill requires CARB to ensure that Scoping Plan updates identify and recommend measures to achieve carbon neutrality, and to identify and implement policies and strategies that enable CO₂ removal solutions and carbon capture, utilization, and storage (CCUS) technologies. This bill is reflected directly in 2022 Scoping Plan.

SENATE BILL 1383

SB 1383 (Chapter 395, Statutes of 2016) sets forth legislative direction for control of short-lived climate pollutants (SLCPs). SLCPs include black carbon (soot), methane, and fluorinated gases (F-gases). SB 1383 requires CARB, no later than January 1, 2018, to approve and begin implementing its SLCP strategy to achieve the following reductions in emissions by 2030 compared to 2013 levels: methane by 40 percent, hydrofluorocarbons by 40 percent, and black carbon (non-forest) by 50 percent. The bill specifies targets for reducing organic waste in landfills and requires CARB to adopt regulations to be implemented on or after January 1, 2024, specific to the dairy and livestock industry, requiring a 40 percent reduction in methane emissions below 2013 levels by 2030, if certain conditions are met. Lastly, the bill requires CalRecycle to adopt regulations to take effect on or after January 1, 2022, to achieve specified targets for reducing organic waste in landfills.

SENATE BILL 150

SB 150 (Allen, Chapter 646, Statutes of 2017) requires CARB to issue a report every four years analyzing the progress made toward meeting the regional SB 375 GHG emissions reduction targets. The progress report is required to include data-supported metrics for strategies utilized to meet the targets, a discussion of best practices, and challenges faced by MPOs in meeting the targets, including the effect of state policies and funding.

The 2018 Progress Report was the first report required under SB 150 and found that California was not on track to meet GHG reductions expected under SB 375 for 2020, largely due to the fact that statewide passenger vehicle travel per capita was increasing (CARB 2018a). Overall, California met its 2020 climate target ahead of schedule, and positive, on-the-ground changes had been made to improve the alignment of transportation, land use, and housing policies with state goals since SB 375 was enacted (e.g., travel patterns, funding for high-quality transit and making communities safe and convenient for walking and cycling, and building homes at all income levels

⁷ For a further discussion of SB 743, see Section 3.17, *Transportation*.

near jobs and other opportunities) (CARB 2018a). The 2018 Progress Report called for more and accelerated action to achieve public health, equity, economic, and climate success. To that effect, the Report included a discussion of 68 best practices, eight SCS implementation challenges, and CARB's suggestions on ways to overcome the challenges.

The subsequent 2022 Progress Report similarly found that California was still not reducing enough GHG emissions from personal vehicle travel as needed to meet climate commitments and as targeted under SB 375 (CARB 2022e). However, primarily as a result of stay-at-home orders and other personal choices in response to the COVID-19 pandemic, many regions met their GHG reduction targets in 2020 (CARB 2022e). The 2022 Progress Report also recognized overall growth and development in the State have been more compact since 2005. The four largest MPO regions, which include the SCAG region, have increased in compactness substantially since 2005 (CARB 2022e). While the passenger vehicle and light-duty trucks per capita VMT and GHG emissions relative to 2005 in the State continued to rise, the 2022 Progress Report showed that the regional passenger vehicle and light-duty trucks per capita VMT and GHG emissions in the SCAG region were both trending in the right directions (decreasing trends) (CARB 2022f).

ADVANCED CLEAN CARS REGULATIONS

In 2012, CARB approved the Advanced Clean Cars program, an emissions-control program for model years 2015–2025 (CARB 2023a). The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the ZEV regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years (CARB 2023a). During the March 2017 Midterm Review, CARB voted unanimously to continue with the vehicle GHG emission standards and the ZEV program for cars and light trucks sold in California through 2025 (CARB 2017d). Effective November 26, 2019, the federal SAFE Vehicles Rule Part One: One National Program withdrew the California waiver for the GHG and ZEV programs under Section 209 of the Clean Air Act, which revokes California's authority to implement the Advanced Clean Cars and ZEV mandates. In response, several states including California filed a lawsuit challenging the withdrawal of the USEPA waiver.⁸ On March 14, 2022, the USEPA issued a notice of decision to reinstate California's Clean Air Act waiver for its Advanced Clean Car regulations.⁹

In addition, Governor Gavin Newsom signed an executive order (Executive Order No. N-79-20) on September 23, 2020, that phases out sales of new gas-powered passenger cars by 2035 in California with an additional 10-year transition period for heavy vehicles. The Executive Order also tasked CARB to develop and propose regulations that require increasing volumes of zero-electric passenger vehicles, medium- and heavy-duty vehicles, drayage trucks, and off-road vehicles toward their corresponding targets of 100 percent zero-emission by 2035 or 2045, as listed above.

The primary mechanism for achieving the ZEV target for passenger cars and light trucks is CARB's Advanced Clean Cars II (ACC II) Program. The ACC II regulations, adopted by CARB in 2022, focus on post-2025 model year light-duty vehicles, as requirements are already in place for new vehicles through the 2025 model year (CARB 2023a).

⁸ United States District Court for the District Court of Columbia, *State of California vs. Chao*, Case 1:19-cv-02826, 2019.

⁹ California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of a Previous Withdrawal of a Waiver of Preemption; Notice of Decision, 87 Fed. Reg. 14,332 (Mar. 14, 2022).

CALIFORNIA CAP-AND-TRADE PROGRAM

Authorized by the California Global Warming Solutions Act of 2006 (AB 32), the Cap-and-Trade Program is a core strategy that California is using to meet its statewide GHG reduction targets for 2020 and 2030, and ultimately achieve an 80 percent reduction from 1990 levels by 2050. Pursuant to its authority under AB 32, CARB has designed and adopted a California Cap-and-Trade Program to reduce GHG emissions from major sources (deemed “covered entities”) by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32’s emission-reduction mandate of returning to 1990 levels of emissions by 2020 (17 CCR Sections 95800 to 96023).

In September 2012, CARB adopted a California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, which established the cap-and-trade program to manage GHG emissions, for California (CARB 2013Aa). The cap-and-trade program is a market-based approach wherein the government determines an overall emission target, or “cap,” for a particular set of facilities. The cap is the total amount of emissions that all of the facilities can produce. Tradable emissions allowances totaling the overall emissions cap are distributed by auction or given out amongst the particular set of facilities. The emissions allowances can be traded amongst the facilities.

Under the Cap-and-Trade Program, an overall limit is established for GHG emissions from capped sectors (e.g., electricity generation, petroleum refining, cement production, and large industrial facilities that emit more than 25,000 metric tons CO₂e per year) and declines over time, and facilities subject to the cap-and-trade permits to emit GHGs. The statewide cap for GHG emissions from the capped sectors commenced in 2013 and declines over time, achieving GHG emission reductions throughout the program’s duration (see generally 17 CCR Sections 95811, 95812). On July 17, 2017, the California Legislature passed Assembly Bill 398, extending the Cap-and-Trade Program through 2030. Each covered entity with a compliance obligation is required to surrender “compliance instruments”¹⁰ for each MTCO₂e of GHG they emit. Covered entities are allocated free allowances in whole or part (if eligible), and can buy allowances at auction, purchase allowances from others, or purchase offset credits. The cap-and-trade regulation provides a firm cap, helping to ensure that the 2020 and 2030 statewide emission limits will not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not direct GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are ensured on a state-wide basis. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported (California Code of Regulations 17, Section 95811(b)). Accordingly, for projects that are subject to CEQA, GHG emissions from electricity consumption are covered by the Cap-and-Trade Program. The Cap-and-Trade Program also covers fuel suppliers (natural gas and propane fuel providers and transportation fuel providers) to address emissions from such fuels and from combustion of other fossil fuels not directly covered at large sources in the Program’s first compliance period (California Code of Regulations 17, Section 95811, 95812(d)).

The Program applies to emissions that cover approximately 80 percent of the State’s GHG emissions. Demonstrating the efficacy of AB 32 policies, California achieved its AB 32 2020 GHG Reduction Target four years earlier than mandated. The largest reductions were the result of increased renewable electricity in the electricity sector, which is a covered sector in the Cap-and-Trade Program.

In the FY 2014-2015 State Budget approved by former Governor Jerry Brown, the state-wide cap and trade expenditure plan allocated \$832 million dollars towards programs that will help reduce GHG emissions, with set-

¹⁰ Compliance instruments are permits to emit, the majority of which will be “allowances,” but entities also are allowed to use CARB-approved offset credits to meet up to 8% of their compliance obligations.

asides for projects benefiting disadvantaged communities. The expenditure plan funds three main investment categories: (1) sustainable communities & clean transportation; (2) energy efficiency and clean energy; and (3) natural resources and waste diversion (SCAG 2015b).

The Affordable Housing & Sustainable Communities (AHSC) Program is a statewide competitive program that provides grants and loans for affordable housing, infill development, transit-oriented development and related infrastructure that is funded by auction proceeds from California's Cap-and-Trade emissions reduction program. The Strategic Growth Council (SGC) and Department of Housing and Community Development (HCD) administer the program, including project evaluation and the approval of funding awards (California Strategic Growth Council 2023). Six projects in the SCAG region were awarded funding for the 7th Cycle of AHSC Funding (2023). The six projects totaled approximately 215 million dollars, approximately 28.5 percent of 7th cycle funding. In 2022, 14 projects were awarded funding as part of the 6th Cycle of AHSC with a total of 304 million dollars, or 38 percent of the 6th cycle funds. Between the 6th and 7th cycles of AHSC, the SCAG region was awarded nearly 520 million dollars, across 20 projects, making up 33.2 percent of total funds allocated for the two cycles.¹¹

The Fiscal Year (FY) 2023–2024 State budget assumes cap-and-trade revenues of \$2.8 billion. This includes \$2.5 billion from projected budget-year auction proceeds and \$298 million from other Greenhouse Gas Reduction Fund (GGRF) revenues (such as interest earnings, additional current-year revenues from the November 2022 auction, and utilizing the existing GGRF fund balance). Under the Governor's proposed FY 2023–2024 State budget, about \$1.6 billion would go to continuously appropriated programs, \$351 million would go toward other existing commitments, and \$861 million would be used for proposed discretionary spending (The Legislative Analyst's Office 2023). Note, the Legislative Analyst's office finds the State's 2023–24 GGRF revenue assumptions in the State budget to be conservative where the administration assumes all allowances will sell at the floor price, which is not a typical scenario as allowances have sold above the floor price over the last couple of years. The Legislative Analyst's Office estimates total GGRF revenues over 2023–24 would be \$1.3 billion more than assumed in the FY 2023–2024 State budget spending (The Legislative Analyst's Office 2023).

AB 398 was enacted in 2017 to extend and clarify the role of the State's Cap-and-Trade Program through December 31, 2030. As part of AB 398, refinements were made to the Cap-and-Trade program to establish updated protocols and allocation of proceeds to reduce GHG emissions.

CARB SMARTWAY/PHASE I AND PHASE II HEAVY-DUTY VEHICLE GREENHOUSE GAS REGULATION

In 2013, CARB approved for adoption California Phase 1 GHG regulations that were substantially identical to the federal Phase 1 regulations. This provided California the authority to certify new California certified engines and vehicles to the Phase 1 standards, as well as enforce them. This regulation applies to GHG emissions from heavy-duty trucks and engines sold in California. It establishes GHG emissions limits on truck and engine manufacturers and harmonizes with the recently adopted USEPA rule for new trucks and engines nationally. Existing heavy-duty vehicle regulations in California include engine criteria emission standards, tractor-trailer GHG requirements to implement SmartWay strategies (i.e., the Heavy-Duty Tractor-Trailer Greenhouse Gas Regulation), and in-use fleet retrofit requirements such as the Truck and Bus Regulation (CARB 2023b).

¹¹ To provide a regional and state perspective on the approximately 33.2 percent of total statewide funding from the AHSC Program, the SCAG region includes nearly 50 percent of the state's population and approximately 65 percent of the state's population in disadvantaged communities.

In 2015, Governor Brown issued Executive Order B-32-15, which led to the development of an integrated Sustainable Freight Action Plan that is intended to improve freight efficiency, transition to zero-emission technologies, and increase competitiveness of California's freight system.

In 2018, California aligned with the federal Phase 2 standards in structure, timing, and stringency, but with some minor California differences. The California Phase 2 GHG emission standards set fuel efficiency standards beginning with model year 2021 for new class 2b to 8 medium- and heavy-duty engines and tractors, and will be fully phased-in by model year 2027. The California Phase 2 GHG regulation also established CO₂ emission standards for certain trailers used in combination with tractors. The trailer standards take effect for all trailer manufacturers in 2020 through 2027. The standards are intended to make trailers more efficient and lower the greenhouse gas emissions associated with their use. Affected trailer types include box-type trailers (dry van and refrigerated van trailers of all lengths), flat bed trailers, tank trailers, and container chassis. Beginning January 1, 2020, trailer manufacturers must certify to California standards and receive an Executive Order from CARB to legally sell trailers in California (CARB 2023c).

CALIFORNIA ENVIRONMENTAL QUALITY ACT GUIDELINES AMENDMENTS

California Senate Bill (SB) 97 (Chapter 185, Statutes of 2007) required the Governor's Office of Planning and Research (OPR) to develop California Environmental Quality Act (CEQA) Guidelines "for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions." The CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The significance of GHG emissions are specifically addressed in CEQA Guidelines Section 15064.4. Section 15064.4 calls for a lead agency to make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG impacts should include consideration of (1) the extent to which the project may increase or reduce GHG emissions; (2) whether the project emissions would exceed a locally applicable threshold of significance; and (3) the extent to which the project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions." The guidelines also state that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of GHG emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (CEQA Guidelines Section 15064(h)(3)).

2020 MOBILE SOURCE STRATEGY

On October 28, 2021, CARB released the updated 2020 Mobile Source Strategy that similar to the 2016 Mobile Source Strategy, shows the framework that identifies demonstrates how the State can simultaneously meet air quality standards, achieve greenhouse gas emission reduction targets, decrease health risk from transportation emissions, and reduce petroleum consumption over the next thirty years. The Mobile Source Strategy aims to deliver environmental and public health benefits as well as updates to transportation infrastructure, enhancements of systemwide efficiency, and clean growth in the mobile sector. The estimated benefits of the strategy in reducing emissions from mobile sources includes 75 and 82 percent reduction of NO_x emissions in 2031 and 2037, respectively below 2017 levels, and a 66 percent reduction in diesel particulate matter from 2017 levels by 2031. CARB estimates statewide, the 2020 Mobile Source Strategy would also result in a 76 percent reduction in greenhouse gas emissions by year 2045 as compared to 2020 levels, and deployment of approximately 1.4 million medium- and heavy-duty ZEVs in California by 2045 (CARB 2021).

CALTRANS GUIDANCE ON INCORPORATING SEA LEVEL RISE

Pursuant to EO S-13-08 and the California Sea Level Rise Interim Guidance Document (State of California 2010), in May 2011 Caltrans released guidance on incorporating sea level rise into planning and decision making with respect to transportation projects. Caltrans' guidance recommends first determining if sea level should be incorporated into project planning, based on the project location and level of risk. A screening process with ten criteria guides the assessment of whether to incorporate sea level rise: design life, redundancy/alternative route(s), anticipated travel delays, evacuations/emergencies, traveler safety, expenditure of public funds, scope of project, effect on non-state highways, and environmental constraints. If the screening determines that sea level rise should be incorporated into project planning, the next step is to estimate the degree of potential impact and assess alternatives for preventing, mitigating and/or absorbing the impact. Caltrans uses the statewide sea level rise estimates presented in the California Sea Level Rise Interim Guidance Document for different years (2030 through 2100) to determine target sea level rise values; Caltrans directs projects with a life that extends to 2030 or earlier not to assume impacts from sea level rise. Having identified target sea level rise values for a project, Caltrans then lays out steps for implementation, including conducting more technical studies of inundation and subsidence and determining any adverse effects on facility functions and operations (e.g., from erosion, exposure to salt water), necessary adaptation measures, and the costs of mitigation (Caltrans 2011).

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH GUIDANCE ON INTEGRATING PUBLIC HEALTH INTO CLIMATE ACTION PLANNING

In February of 2012, the California Department of Public Health released a guidance document, *Climate Action for Health: Integrating Public Health into Climate Action Planning* (California Department of Public Health 2012). This document introduces key health connections to climate change mitigation strategies, and suggestions for where these fit into a local climate action plan or general plan. The guidance document also provides a number of examples of strategies taken from actual climate action plans that integrate public health objectives, with policy efforts to improve community health and reduce GHG emissions. The information provided is advisory, voluntary, and educational. The document includes specific policy recommendations for transportation and land use planning, including incorporation of green space and tree canopy to mitigate urban heat islands, and healthy siting of housing, schools, and health care facilities to avoid major air quality impacts.

CALIFORNIA APPLIANCE EFFICIENCY REGULATIONS

The Appliance Efficiency Regulations (Title 20, Sections 1601 through 1608), adopted by the CEC, include standards for new appliances (e.g., refrigerators) and lighting, if they are sold or offered for sale in California. These standards include minimum levels of operating efficiency, and other cost-effective measures, to promote the use of energy- and water-efficient appliances.

TITLE 24, BUILDING STANDARDS CODE AND CALGREEN CODE

The CEC first adopted the Energy Efficiency Standards for Residential and Nonresidential Buildings (CCR, Title 24, Part 6) in 1978 in response to a legislative mandate to reduce energy consumption in the State. Although not originally intended to reduce GHG emissions, increased energy efficiency, and reduced consumption of electricity, natural gas, and other fuels would result in fewer GHG emissions from residential and nonresidential buildings subject to the standard. The standards are updated periodically to allow for the consideration and inclusion of new energy efficiency technologies and methods.

Part 11 of the Title 24 Building Standards is referred to as the California Green Building Standards (CALGreen) Code and was developed to help the State achieve its GHG reduction goals under HSC Division 25.5 (e.g., AB 32) by codifying standards for reducing building-related energy, water, and resource demand, which in turn reduces GHG emissions from energy, water, and resource demand. The purpose of the CALGreen Code is to “improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) Planning and design; (2) Energy efficiency; (3) Water efficiency and conservation; (4) Material conservation and resource efficiency; and (5) Environmental air quality” (California Building Standards Commission 2010). The CALGreen Code is not intended to substitute for or be identified as meeting the certification requirements of any green building program that is not established and adopted by the California Building Standards Commission. The CALGreen Code establishes mandatory measures for new residential and non-residential buildings. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design and overall environmental quality (California Building Standards Commission 2010).

On May 9, 2018, the CEC adopted the 2019 Title 24 Standards, which went into effect on January 1, 2020. The 2019 standards continue to improve upon the previous (2016) Title 24 standards for new construction of, and additions and alterations to, residential and non-residential buildings (CEC 2019). The 2019 Title 24 Standards ensure that builders use the most energy efficient and energy conserving technologies and construction practices. As described in the 2019 Title 24 Standards represent “challenging but achievable design and construction practices” that represent “a major step towards meeting the Zero Net Energy (ZNE) goal.” Single-family homes built with the 2019 Title 24 Standards are projected to use approximately seven percent less energy due to energy efficiency measures versus those built under the 2016 standards. Once the mandated rooftop solar electricity generation is factored in, homes built under the 2019 standards will use about 53 percent less energy than those under the 2016 standards. Nonresidential buildings are projected to use approximately 30 percent less energy due mainly to lighting upgrades (CEC 2019). Compliance with Title 24 is enforced through the building permit process.

On August 11, 2021, the CEC adopted the 2022 Title 24 Standards, which were approved by the California Building Standards Commission for inclusion into the California Building Standards Code in December 2021. The 2022 standards encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, strengthens ventilation standards, and more (California Building Standards Commission 2022). Buildings whose permit applications are applied for on or after January 1, 2023, must comply with the 2022 standards (CEC 2022).

CALTRANS 2020-2024 STRATEGIC MANAGEMENT PLAN

The 2020–2024 Caltrans Strategic Management Plan (Caltrans 2021) redefines the Caltrans vision statement from the 2015–2020 plan (Caltrans 2015). The Caltrans mission statement is that Caltrans will “*provide a safe and reliable transportation network that serves all people and respects the environment.*” The Caltrans vision is *A brighter future for all through a world-class transportation network* where, as envisioned by Caltrans, “a world-class transportation network” will be safe, equitable, reliable, efficient, sustainable, and resilient; minimize the negative impacts to the environment and enhance the environment where possible; help the economy thrive and give California residents options for their travel needs.” The document identifies six goals: (1) Safety First; (2) Cultivate Excellence; (3) Enhance and Connect the Multimodal Transportation Network; (4) Strengthen Stewardship and Drive Efficiency; (5) Lead Climate Action; and (6) Advance Equity and Livability in All Communities. The document identifies numerous strategies to achieve each goal, including the following target with respect to the Goal Lead Climate

Action: to develop and start implementing a Caltrans Climate Action Plan, Accelerate sustainable freight sector transformation, establish a robust Climate Action program of education, training, and outreach, establish VMT monitoring and engage with communities most vulnerable to climate change impacts to inform development and implementation of Climate Action activities.

EXECUTIVE ORDER (EO) S-3-05

On June 1, 2005, EO S-3-05 set the following GHG emission reduction goals: reduce GHG emissions to 2000 levels by 2010; reduce GHG emissions to 1990 levels by 2020; and reduce GHG emissions to 80 percent below 1990 levels by 2050 (Office of the Governor, Arnold Schwarzenegger 2005).¹² EO S-3-05 also calls for the Secretary of California Environmental Protection Agency (CalEPA) to be responsible for coordination of state agencies and progress reporting.

In response to the Executive Order, the Secretary of the CalEPA created the Climate Action Team (CAT) (CalEPA 2023). California's CAT originated as a coordinating council organized by the Secretary for Environmental Protection. It included the Secretaries of the Natural Resources Agency, and the Department of Food and Agriculture, and the Chairs of the Air Resources Board, Energy Commission, and Public Utilities Commission. The original council was an informal collaboration between the agencies to develop potential mechanisms for reductions in GHG emissions in the state. The council was given formal recognition in Executive Order S-3-05 and became the CAT.

The original mandate for the CAT was to develop proposed measures to meet the emission reduction targets set forth in the executive order. The CAT has since expanded and currently has members from 18 state agencies and departments.

The CAT is responsible for preparing reports that summarize the state's progress in reducing GHG emissions. The most recent CAT Report was published in December 2010 (Climate Action Team 2010). The CAT Report discusses mitigation and adaptation strategies, state research programs, policy development, and future efforts.

EXECUTIVE ORDER S-1-07, THE LOW CARBON FUEL STANDARD

On January 18, 2007, Executive Order S-1-07 was issued establishing a statewide goal to reduce at least 10 percent in the carbon intensity of California's transportation fuels by 2020 (California State Library 2007). Regulatory proceedings and implementation of the Low Carbon Fuel Standard have been directed to the CARB. The Low Carbon Fuel Standard has been identified by CARB as a discrete early action item in the Climate Change Scoping Plan (CARB 2017b). CARB expects the Low Carbon Fuel Standard to achieve the minimum 10 percent reduction goal; however, many of the early action items outlined in the Climate Change Scoping Plan work in tandem with one another. To avoid the potential for double-counting emission reductions associated with AB 1493 (see previous discussion), the Climate Change Scoping Plan has modified the aggregate reduction expected from the Low Carbon Fuel Standard to 9.1 percent. In September 2018, the standards were amended by CARB to require a 20 percent reduction in carbon intensity by 2030, aligning with California's 2030 targets set by SB 32 (CARB 2018b).

¹² While EO S-3-05 sets a goal that Statewide GHG emissions be reduced to 80 percent below 1990 levels by 2050, the EO does not constitute a "plan" for GHG reduction, and no State plan has been adopted to achieve the 2050 goal.

EXECUTIVE ORDER S-13-08

Executive Order S-13-08, signed on November 14, 2008, directs California to develop methods for adapting to climate change impacts through preparation of a statewide plan (California State Library 2008). In response to this order, the California Natural Resources Agency coordinated with 10 state agencies, multiple scientists, a consulting team, and stakeholders to develop the first statewide, multi-sector adaptation strategy in the country. The resulting report, *2009 California Climate Adaptation Strategy* (CNRA 2009a)¹³ summarizes the best-known science to assess the vulnerability of the state to climate change impacts and outlines possible solutions that can be implemented within and across state agencies to promote resiliency. This strategy is the first step in an evolving process to reduce California's vulnerability to climate change impacts.

Adaptation refers to efforts that prepare the state to respond to the impacts of climate change – adjustments in natural or human systems to actual or expected climate changes to minimize harm or take advantage of beneficial opportunities. California's ability to manage its climate risks through adaptation depends on a number of critical factors. These include its baseline and projected economic resources, technology, infrastructure, institutional support and effective governance, public awareness, access to the best available scientific information, sustainably managed natural resources, and equity in access to these resources.

EXECUTIVE ORDER B-16-2012 AND B-48-2018

On March 23, 2012, Governor Brown issued Executive Order B-16-2012 to encourage ZEVs and related infrastructure (State of California 2012). It orders CARB, CEC, CPUC, and other relevant agencies to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks concerning ZEVs. By 2020, the state's ZEV infrastructure should support up to one million vehicles. By 2025, Executive Order B-16-2012 aims to put over 1.5 million ZEVs on California roads and displace at least 1.5 billion gallons of petroleum. The Executive Order also directs state government to begin purchasing ZEVs. In 2015, 10 percent of state departments' light-duty fleet purchases must be ZEVs, climbing to 25 percent of light-duty fleet purchases by 2020. Executive Order B-16-2012 sets a target for 2050 to reduce GHG emissions in the transportation sector by 80 percent below 1990 levels.

In February 2013, an interagency working group developed the ZEV Action Plan which identifies specific strategies and actions that state agencies will take to meet the milestones of the Executive Order. The ZEV Action Plan states (Governor's Interagency Working Group on Zero-Emission Vehicles 2013):

- ZEVs are crucial to achieving the state's 2050 greenhouse gas goal of 80 percent emission reductions below 1990 levels, as well as meeting federal air quality standards. Achieving 1.5 million ZEVs by 2025 is essential to advance the market and put the state on a path to meet these requirements.

The ZEV Action Plan was updated in 2016, and highlights the following priorities for ZEVs:

- Raising consumer awareness and education about ZEVs
- Ensuring ZEVs are accessible to a broad range of Californians
- Making ZEV technologies commercially viable in targeted applications the medium-duty, heavy-duty and freight sectors

¹³ This report has been updated twice, once in 2014, and once in 2018 to reflect current adaptation strategies and incorporate a "Climate Justice" chapter highlighting how equity is woven throughout the entire plan.

- Aiding ZEV market growth beyond California

The 2016 ZEV Action Plan introduces new actions to meet these priorities and build California's ZEV market, remove barriers to future market growth and ensure this transition benefits the state and its residents. The intent is to clearly communicate what state government will do to advance ZEVs and serve as a "to-do" list for the Governor's Office and state agencies to enhance interagency coordination (Governor's Interagency Working Group on Zero-Emission Vehicles 2016).

In response to Executive Order B-48-2018, which set targets of 200 hydrogen fueling stations and 250,000 electric vehicle chargers to support 1.5 million ZEVs on California roads by 2025 and 5 million by 2030, the ZEV Action Plan was once again updated in 2018 to help expand private investment in zero-emission vehicle infrastructure, particularly in low income and disadvantaged communities (Governor's Interagency Working Group on Zero-Emission Vehicles, 2018). This 2018 Priorities Update serves as an addendum to the 2016 Plan, highlighting the most important actions state agencies are taking in 2018 to implement the new directives in the Executive Order. This 2018 Priorities Update focuses specifically on state agency actions and is designed to serve three fundamental purposes (Governor's Interagency Working Group 2018):

1. Provide direction to state agencies on the most important actions to be executed in 2018 to enable progress toward the 2025 targets and 2030 vision.
2. Give stakeholders transparency into the actions state agencies plan to take (or are taking) this year to further the ZEV market.
3. Create a platform for stakeholder engagement, feedback, and collaboration.

Building on the success and lessons of California's three ZEV Action Plans in 2013, 2016, and 2018, the state is developing the ZEV Market Development Strategy, which is designed to help California collectively move forward and deliver zero-emission benefits to all Californians. The ZEV Market Development Strategy outlines how state agencies and stakeholder groups can achieve the state's ZEV targets of (Governor's Office of Business and Economic Development 2023):

- 100 percent of in-state sales of new passenger cars and trucks will be zero-emission by 2035
- 100 percent of medium- and heavy-duty vehicles in the State will be zero-emission by 2045 and by 2035 for drayage trucks
- 100 percent of off-road vehicles and equipment will be zero-emission by 2035

EXECUTIVE ORDER B-30-15

On April 29, 2015, Governor Brown issued Executive Order B-30-15. Therein, the Governor directed the following:

- Establish a new interim Statewide reduction target to reduce GHG emissions to 40 percent below 1990 levels by 2030.
- All State agencies with jurisdiction over sources of GHG emissions to implement measures to achieve reductions of GHG emissions to meet the 2030 and 2050 reduction targets.
- CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of CO₂ equivalent (MMCTO_{2e}).

EXECUTIVE ORDER B-55-18

Governor Brown signed Executive Order B-55-18 in September 2018 to establish a statewide goal to achieve carbon neutrality as soon as possible, and no later than 2045, and to achieve and maintain net negative emissions thereafter. Policies and programs undertaken to achieve this goal shall:

- Seek to improve air quality and support the health and economic resiliency of urban and rural communities, particularly low-income and disadvantaged communities.
- Be implemented in a manner that supports climate adaptation and biodiversity, including protection of the state's water supply, water quality, and native plants and animals.

This Executive Order also calls for CARB to:

- Develop a framework for implementation and accounting that tracks progress toward this goal.
- Ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

The 2022 Scoping Plan is designed to achieve carbon neutrality no later than 2045 and the modeling includes technology and fuel transitions to achieve that outcome.

EXECUTIVE ORDER N-19-19

Governor Newsom signed Executive Order N-19-19 in September 2019 to direct state government to redouble its efforts to reduce GHG emissions and mitigate the impacts of climate change while building a sustainable, inclusive economy (Adaptation Clearinghouse 2019). This Executive Order instructs the Department of Finance to create a Climate Investment Framework that:

- Includes a proactive strategy for the state's pension funds that reflects the increased risks to the economy and physical environment due to climate change.
- Provides a timeline and criteria to shift investments to companies and industry sectors with greater growth potential based on their focus of reducing carbon emissions and adapting to the impacts of climate change.
- Aligns with the fiduciary responsibilities of the California Public Employees' Retirement System, California State Teachers' Retirement System, and the University of California Retirement Program.

Executive Order N-19-19 directs the State Transportation Agency to leverage more than \$5 billion in annual state transportation spending to help reverse the trend of increased fuel consumption and reduce GHG emissions associated with the transportation sector. It also calls on the Department of General Services to leverage its management and ownership of the state's 19 million square feet in managed buildings, 51,000 vehicles, and other physical assets and goods to minimize state government's carbon footprint. Finally, it tasks CARB with accelerating progress toward California's goal of five million ZEV sales by 2030 by:

- Developing new criteria for clean vehicle incentive programs to encourage manufacturers to produce clean, affordable cars.
- Proposing new strategies to increase demand in the primary and secondary markets for ZEVs.
- Considering strengthening existing regulations or adopting new ones to achieve the necessary GHG reductions from within the transportation sector.

REGIONAL AND LOCAL

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) POLICY ON GLOBAL WARMING AND STRATOSPHERIC OZONE DEPLETION

SCAQMD adopted a “Policy on Global Warming and Stratospheric Ozone Depletion” on April 6, 1990. The policy commits the SCAQMD to consider global impacts in rulemaking and in drafting revisions to the Air Quality Management Plan. In March 1992, the SCAQMD Governing Board reaffirmed this policy and adopted amendments to the policy (SCAQMD 2023).

SCAQMD DRAFT GUIDANCE REGARDING INTERIM CEQA GHG SIGNIFICANCE THRESHOLDS

In 2008, SCAQMD released draft guidance regarding interim CEQA GHG significance thresholds (SCAQMD 2008a). A GHG Significance Threshold Working Group was formed to further evaluate potential GHG significance thresholds (SCAQMD 2019). The SCAQMD proposed the use of a percent emission reduction target to determine significance for commercial/residential projects that emit greater than 3,000 MTCO_{2e} per year. Under this proposal, commercial/residential projects that emit fewer than 3,000 MTCO_{2e} per year would be assumed to have a less than significant impact on climate change. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold of 10,000 MTCO_{2e} per year for stationary source/industrial projects where the SCAQMD is the lead agency. However, the SCAQMD has yet to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects). The Working Group has been inactive since 2011, and SCAQMD has not formally adopted any GHG significance threshold for other jurisdictions.

The CEQA GHG Significance Threshold Working Group met several times in 2008 to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. Members of the working group included various stakeholder groups from state agencies, OPR, CARB, Attorney’s General Office, local agencies, city and county planning departments, utilities, industry groups, and both environmental and professional organizations. The purpose of the working group was to solicit comments from the stakeholders as SCAQMD developed interim GHG significance thresholds to achieve a 90 percent GHG emission capture rate (SCAQMD 2019). The Working Group discussed methodologies for determining project significance including categorical exemptions, consistency with regional GHG budgets in approved plans, a numerical threshold, performance standards, and emissions offsets.

The draft tier thresholds recommended by the SCAQMD Working Group were designed to meet reduction requirements from AB 32. Since the development of the draft tier thresholds, California passed SB 32 in order to reduce state GHG emissions to 40 percent below 1990 levels by 2030 (see SB 32 discussion above). These recommended thresholds are over a decade old and were not designed to meet the stricter 2030 reduction requirements, as a result these thresholds are outdated and were not utilized in this analysis.

COUNTIES

IMPERIAL COUNTY

In June 2021, Imperial County published the Imperial County Regional Climate Action Plan serves as the long-range plan that outlines specific strategies to reduce greenhouse gas (GHG) emissions from Imperial County (ICTC 2021). The Imperial County Regional Climate Action Plan is intended to facilitate the reduction of GHG emissions

throughout Imperial County in a way that is practical, efficient, and beneficial to the community and enhances Imperial County's desirable characteristics and qualities. The Imperial County Regional Climate Action Plan outlines measures and actions that would facilitate meeting the State 2020 and 2030 GHG reduction goals under AB 32 and SB 32. The Imperial County Regional Climate Action Plan also makes the region eligible for State funding, streamlines the process to approve projects, as well as help achieve multiple community goals such as lowering energy costs, reducing air pollution, supporting local economic development, and improving public health and quality of life.

LOS ANGELES COUNTY

The Los Angeles County Office of Sustainability was created within the Internal Services Department by the Board of Supervisors in October 2009 to respond to legislation, regulation, and policy related to Climate Change and serve as a central hub to coordinate Energy Efficiency, Conservation and Sustainability Programs within the County, its facilities, and the region (County of Los Angeles 2023). The County Office of Sustainability develops and implements programs that impact and benefit the constituents of Los Angeles County, such as the Energy Upgrade California in Los Angeles County energy efficiency home improvement and rebate program, countywide Environmental Service Centers, the SolarMap LACounty.gov and Green.LACounty.gov websites, and the Los Angeles Regional Collaborative for Climate Action and Sustainability. In addition, the County Office of Sustainability is the lead in coordinating and implementing Energy and Environmental policy programs and activities by all County departments.

In March 2015, Los Angeles County Board of Supervisors approved the first Community Climate Action Plan (CCAP). The CCAP provided a roadmap to reduce GHGs in Los Angeles County by 11 percent by 2020. The 2020 CCAP sought to achieve this through cool roofs, solar, tree canopies, and more active transportation and public transit use (Climate Resolve 2015).

In August 2019, the Los Angeles County Board of Supervisors adopted the OurCounty regional sustainability plan. It outlines what local governments and stakeholders can do to enhance community well-being while reducing damage to the natural environment and adapting to climate change, with a particular focus on communities disproportionately burdened by environmental pollution. OurCounty is organized around 12 goals that will guide policy toward resiliency, equity, parks, renewable energy, reducing car dependency, and more. Its most ambitious goal includes reaching complete carbon neutrality by 2050 by completely phasing out fossil fuels countywide (OurCounty 2019).

In April 2022, the Public Discussion Draft County of Los Angeles 2045 Climate Action (2045 CAP) was released to the public for review. The 2045 CAP is the County's path toward meeting the goals of the Paris Agreement and achieving carbon neutrality for unincorporated Los Angeles County. The 2045 CAP builds on previous climate action work from the Unincorporated Los Angeles County Community Climate Action Plan 2020 (2020 CCAP) General Plan 2035 (General Plan). The 2045 CAP includes 10 strategies centered on five sectors including: energy supply, transportation, building energy and water, waste and agriculture, forestry and other land use, that are further supported by 25 measures and over 90 actions that, when combined, achieve all three of the GHG emissions reduction targets for 2030, 2035, and 2045 for Los Angeles County that are consistent with state goals pursuant to SB 32, AB 1279, and the 2022 Scoping Plan (County of Los Angeles, Department of Regional Planning 2023). After receiving comments from stakeholders, Los Angeles County determined substantially revised and update the public discussion draft and released the Revised Draft 2045 Climate in March 2023 that is still currently in the review process (County of Los Angeles, Department of Regional Planning 2023).

ORANGE COUNTY

In early 2010, a joint committee with equal representation from the Orange County Council of Governments (COG) and the Orange County Transportation Authority (OCTA) was formed to develop the Orange County Sustainable Communities Strategy (SCS) (OCTA/COG 2011). The Orange County COG/OCTA SCS Joint Working Committee led overall efforts to develop a subregional Orange County SCS to meet the requirements of SB 375 and the mutual agreements with SCAG with a plan that all local jurisdictions in Orange County could support. As a result of this collaborative effort, the Orange County SCS was adopted unanimously by the OCTA and Orange County COG Boards of Directors in June of 2011. Orange County SCS utilizes the transportation system along with land use and Best Management Practices strategies to help the County to achieve the state-mandated emissions reduction targets. The Orange County is moving forward with developing a county climate action plan to address ways the county could help slow climate change and mitigate the local effect (Orange County Register 2023).

RIVERSIDE COUNTY

In July 2018, Riverside County created a Climate Action Plan to establish a clear path to sustainability and GHG reduction. The 2019 Climate Action Plan Update was approved on December 17, 2019. The Plan Update establishes a 2020 reduction goal of 15 percent to 2008 emissions in order to be consistent with AB 32 (Riverside County Planning Department 2019). The 2019 CAP Update refines Riverside County's efforts to meet greenhouse gas (GHG) reduction strategies, specifically for the years 2035 and 2050 (Riverside County Planning Department 2019).

In September 2014, Western Riverside Council of Governments (WRCOG) published the Subregional Climate Action Plan. The major goals of the Climate Action Plan are to create local jobs, promote healthier communities, achieve energy self-sufficiency, enhance social equity, reduce emissions, improve air quality, protect natural systems, and save money. WRCOG aims to reduce GHG emissions to 15 percent below 2010 levels by 2020, and 49 percent below 2010 levels by 2035 (WRCOG 2014). In 2018, WRCOG grant funding from the Caltrans Sustainable Transportation Planning Grant Program to prepare an update and expansion to WRCOG's Subregional Climate Action Plan (CAP), branded as the CAP Update. The CAP Update provides local jurisdictions a process through which they can collaborate, share ideas, and develop a customized local CAP and it also aims to help jurisdictions streamline environmental review and gain access to new sources of state funding. While the CAP update has yet to be completed, it will include a comprehensive update to greenhouse gas (GHG) inventories and GHG emissions reduction strategies for all sectors and establishes GHG targets for the years 2030 and 2050 for all WRCOG member jurisdictions (WRCOG 2023).

SAN BERNARDINO COUNTY

In March 2014, San Bernardino County released the final version of the San Bernardino County Greenhouse Gas Reduction Plan and Final EIR to be certified by the SANBAG Board of Directors (San Bernardino Associated Governments 2014). In March 2021, San Bernardino County released the final version of the updated San Bernardino County Regional Greenhouse Gas Reduction Plan. Similar to the 2014 plan, the updated San Bernardino County Greenhouse Gas Reduction Plan published in 2021 initiated the compilation of an updated inventory of GHG emissions across the County as well as an evaluation of measures that could be adopted on a City-level to reduce emissions. The 2021 San Bernardino County Greenhouse Gas Reduction Plan is in accordance with AB 32, SB 375, and other regional and general plans and provides a baseline of information for jurisdictions addressing greenhouse gas emissions (San Bernardino Associated Governments 2021).

VENTURA COUNTY

In April 2010, the County of Ventura General Services Agency (GSA) released an Energy Action Plan to minimize energy intensities in GSA-maintained buildings, improve operational energy and water efficiencies, reduce energy and water use, pursue LEED and Energy Star certifications, and educate GSA employees. As of April 2012, the County of Ventura released a Climate Protection Plan to reduce GHG emissions by 15 percent by 2020. The six action areas include climate protection leadership, countywide responsibility, facilities, vehicle (fleet) operations, employee commute, and expanded sustainability goals (County of Ventura 2023c).

On September 15, 2020, the Ventura County Board of Supervisors adopted the County of Ventura 2040 General Plan and certified the Environmental Impact Report and related documents. As noted in the General Plan, the County developed an integrated approach to addressing climate change in the General Plan by incorporating related policies and programs throughout the General Plan elements, such that the General Plan will also serve as Ventura County's Climate Action Plan. (County of Ventura 2023a.) Further, the 2040 General Plan includes the Climate Change Appendix to provide further details regarding the General Plan's integrated climate action strategy, including a summary of results of key technical analyses used to develop the strategy. Section B.1 of the Appendix includes the components of the Ventura County greenhouse gas emissions reduction strategy (GHG Strategy), while Section B.2 of the Appendix documents Ventura County's vulnerability to climate change and Climate Adaptation strategy (County of Ventura 2023b).

CITIES

In 2016, the Governor's Office of Planning and Research (OPR) prepared a list of plans and initiatives adopted by California jurisdictions, including jurisdictions in the SCAG region, to address climate change (OPR 2016). The list showed that about 20 percent of the local jurisdictions had either completed local climate action plans or had efforts underway. Some cities in the SCAG region have also addressed climate change and GHG policies in their planning and permitting programs. As part of its Sustainability Program, SCAG has provided funding assistance for such local GHG emissions inventory efforts and local climate action plans. Jurisdictions within the SCAG region that have undertaken plans and initiatives addressing climate change are shown in **Table 3.8-6, Jurisdictions Addressing Climate Change in the SCAG Region (2023)**.

TABLE 3.8-6 Jurisdictions Addressing Climate Change in the SCAG Region (2023)

COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?	COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?
Imperial	Brawley	Yes	Yes	No	Orange	Aliso Viejo	No	No	No
Imperial	Calexico	Yes	Yes	No	Orange	Anaheim	No	No	No
Imperial	Calipatria	No	No	No	Orange	Brea	Yes	Yes	No
Imperial	City of Imperial	No	No	No	Orange	Buena Park	No	No	No
Imperial	County of Imperial	No	No	No	Orange	Costa Mesa	No	No	No
Imperial	El Centro	No	No	No	Orange	County of Orange	No	No	No
Imperial	Holtville	No	No	No	Orange	Cypress	No	No	No
Imperial	Westmorland	No	No	No	Orange	Dana Point	No	No	No
Los Angeles	Agoura Hills	Yes	Yes	Yes	Orange	Fountain Valley	No	No	No
Los Angeles	Alhambra	No	No	No	Orange	Fullerton	Yes	Yes	No
Los Angeles	Arcadia	No	No	No	Orange	Garden Grove	No	No	No
Los Angeles	Artesia	No	No	No	Orange	Huntington Beach	No	No	No
Los Angeles	Avalon	No	No	No	Orange	Irvine	Yes (In Process)	No	No
Los Angeles	Azusa	No	No	No	Orange	La Habra	Yes	Yes	No
Los Angeles	Baldwin Park	No	No	No	Orange	La Palma	No	No	No
Los Angeles	Bell	No	No	No	Orange	Laguna Beach	Yes	Yes	No
Los Angeles	Bell Gardens	No	No	No	Orange	Laguna Hills	No	No	No
Los Angeles	Bellflower	Yes	Yes	No	Orange	Laguna Niguel	No	No	No
Los Angeles	Beverly Hills	Yes	Yes	No	Orange	Laguna Woods	Yes	Yes	Yes

COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?	COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?
Los Angeles	Bradbury	No	Yes	No	Orange	Lake Forest	No	No	No
Los Angeles	Burbank	Yes	Yes	No	Orange	Los Alamitos	No	No	No
Los Angeles	Calabasas	No	No	No	Orange	Mission Viejo	Yes	Yes	No
Los Angeles	Carson	Yes	Yes	No	Orange	Newport Beach	No	No	No
Los Angeles	Cerritos	No	No	No	Orange	Orange	No	No	No
Los Angeles	Claremont	Yes	Yes	No	Orange	Rancho Santa Margarita	No	No	No
Los Angeles	Commerce	No	No	No	Orange	San Clemente	Yes	Yes	No
Los Angeles	Compton	No	No	No	Orange	San Juan Capistrano	No	No	No
Los Angeles	County of Los Angeles	Yes	Yes	No	Orange	Santa Ana	Yes	Yes	No
Los Angeles	Covina	No	No	No	Orange	Seal Beach	No	No	No
Los Angeles	Cudahy	No	No	No	Orange	Stanton	No	No	No
Los Angeles	Culver City	No	No	No	Orange	Tustin	No	No	No
Los Angeles	Diamond Bar	Yes	Yes	No	Orange	Villa Park	No	No	No
Los Angeles	Downey	No	No	No	Orange	Westminster	No	No	No
Los Angeles	Duarte	No	No	No	Orange	Yorba Linda	No	No	No
Los Angeles	El Monte	No	No	No	Orange	Placentia	No	No	No
Los Angeles	El Segundo	Yes	Yes	No	Riverside	Banning	Yes	Yes	Yes
Los Angeles	Gardena	Yes	Yes	Yes	Riverside	Beaumont	Yes	Yes	No
Los Angeles	Gateway COG	Yes	Yes	Yes	Riverside	Blythe	Yes	Yes	No
Los Angeles	Glendale	Yes	Yes	Yes	Riverside	Calimesa	Yes	Yes	Yes
Los Angeles	Glendora	No	No	No	Riverside	Canyon Lake	Yes	Yes	Yes

COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?	COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?
Los Angeles	Hawaiian Gardens	No	No	No	Riverside	Cathedral City	Yes	Yes	Yes
Los Angeles	Hawthorne	Yes	Yes	Yes	Riverside	Coachella	Yes	Yes	Yes
Los Angeles	Hermosa Beach	Yes	Yes	No	Riverside	Coachella Valley COG	No	No	No
Los Angeles	Hidden Hills	No	No	No	Riverside	Corona	Yes	Yes	Yes
Los Angeles	Huntington Park	No	No	No	Riverside	County of Riverside	Yes	Yes	No
Los Angeles	Industry	No	No	No	Riverside	Desert Hot Springs	No	No	No
Los Angeles	Inglewood	Yes	Yes	Yes	Riverside	Eastvale	Yes	Yes	No
Los Angeles	Irwindale	No	No	No	Riverside	Hemet	Yes	Yes	Yes
Los Angeles	La Canada Flintridge	Yes	Yes	Yes	Riverside	Indian Wells	Yes	Yes	No
Los Angeles	La Habra Heights	No	No	No	Riverside	Indio	Yes	Yes	Yes
Los Angeles	La Mirada	No	No	No	Riverside	Jurupa Valley	Yes	Yes	Yes
Los Angeles	La Puente	No	No	No	Riverside	La Quinta	No	No	No
Los Angeles	La Verne	No	No	No	Riverside	Lake Elsinore	Yes	Yes	No
Los Angeles	Lakewood	No	No	No	Riverside	Menifee	No	No	No
Los Angeles	Lancaster	Yes	Yes	No	Riverside	Moreno Valley	Yes	Yes	No
Los Angeles	Las Virgenes/Malibu COG	No	No	No	Riverside	Morongo Band of Mission Indians	Yes	Yes	No
Los Angeles	Lawndale	Yes	Yes	Yes	Riverside	Murrieta	Yes	Yes	No

COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?	COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?
Los Angeles	Lomita	Yes	Yes	No	Riverside	Pechanga Band of Luiseno Indians	Yes	Yes	Yes
Los Angeles	Long Beach	Yes (In Process – Anticipated Fall 2021)	Yes (In Process – Anticipated Fall 2021)	Yes (In Process – Anticipated Fall 2021)	Riverside	Western Riverside COG	Yes	Yes	Yes
Los Angeles	Los Angeles	Yes	Yes	Yes	Riverside	Norco	Yes	Yes	Yes
Los Angeles	Lynwood	No	No	No	Riverside	Palm Desert	Yes	No	No
Los Angeles	Malibu	No	No	No	Riverside	Palm Springs	Yes	Yes	No
Los Angeles	Manhattan Beach	Yes	Yes	No	Riverside	Perris	Yes	Yes	No
Los Angeles	Maywood	No	No	No	Riverside	Rancho Mirage	Yes	Yes	No
Los Angeles	Monrovia	No	No	No	Riverside	Riverside	Yes	Yes	No
Los Angeles	Montebello	No	No	No	Riverside	San Jacinto	Yes	Yes	Yes
Los Angeles	Monterey Park	Yes	Yes	No	Riverside	Temecula	Yes	Yes	Yes
Los Angeles	Norwalk	No	No	No	Riverside	Wildomar	Yes	Yes	Yes
Los Angeles	Palmdale	No	No	No	San Bernardino	Adelanto	No	No	No
Los Angeles	Palos Verdes Estates	Yes	Yes	No	San Bernardino	Apple Valley	Yes	Yes	No
Los Angeles	Paramount	Yes (In Process)	No	No	San Bernardino	Barstow	No	No	No
Los Angeles	Pasadena	Yes	Yes	Yes	San Bernardino	Big Bear Lake	Yes	Yes	No
Los Angeles	Pico Rivera	No	No	No	San Bernardino	Chino	Yes	Yes	Yes
Los Angeles	Pomona	No	No	No	San Bernardino	Chino Hills	No	No	No

COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?	COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?
Los Angeles	Rancho Palos Verdes	Yes	Yes	No	San Bernardino	Colton	Yes	Yes	No
Los Angeles	Redondo Beach	Yes	Yes	No	San Bernardino	County of San Bernardino	Yes	Yes	No
Los Angeles	Rolling Hills	Yes	Yes	No	San Bernardino	Fontana	No	No	No
Los Angeles	Rolling Hills Estates	Yes	Yes	No	San Bernardino	Grand Terrace	No	No	No
Los Angeles	Rosemead	No	No	No	San Bernardino	Hesperia	Yes	Yes	Yes
Los Angeles	San Dimas	No	No	No	San Bernardino	Highland	No	No	No
Los Angeles	San Fernando	No	No	No	San Bernardino	Loma Linda	No	No	No
Los Angeles	San Fernando Valley COG	No	No	No	San Bernardino	Montclair	No	No	No
Los Angeles	San Gabriel	No	No	No	San Bernardino	Needles	No	No	No
Los Angeles	San Gabriel Valley COG	No	No	No	San Bernardino	Ontario	Yes	Yes	No
Los Angeles	San Marino	No	No	No	San Bernardino	Rancho Cucamonga	Yes	Yes	No
Los Angeles	Santa Clarita	Yes	Yes	No	San Bernardino	Redlands	Yes	Yes	No
Los Angeles	Santa Fe Springs	No	No	No	San Bernardino	Rialto	No	No	No
Los Angeles	Santa Monica	Yes	Yes	Yes	San Bernardino	San Bernardino	No	No	No
Los Angeles	Sierra Madre	No	No	No	San Bernardino	Twentynine Palms	No	No	No
Los Angeles	Signal Hill	No	No	No	San Bernardino	Upland	No	No	No
Los Angeles	South Bay Cities COG	Yes	Yes	Yes	San Bernardino	Victorville	Yes	Yes	No
Los Angeles	South El Monte	No	No	No	San Bernardino	Yucaipa	Yes	Yes	No

COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?	COUNTY	MUNICIPALITY	MUNICIPALITY HAS A STANDALONE CLIMATE, SUSTAINABILITY, AND/OR RESILIENCE PLAN?	PLAN THAT INCLUDES CLIMATE ACTION (MITIGATION)? (CAP)	PLAN THAT INCLUDES CLIMATE ADAPTATION?
Los Angeles	South Gate	No	No	No	San Bernardino	Yucca Valley	No	No	No
Los Angeles	South Pasadena	Yes	Yes	Yes	Ventura	Camarillo	No	No	No
Los Angeles	Temple City	No	No	No	Ventura	Camarillo	No	No	No
Los Angeles	Torrance	Yes	Yes	No	Ventura	County of Ventura	Yes	Yes	Yes
Los Angeles	Vernon	Yes	Yes	No	Ventura	Filmore	No		
Los Angeles	Walnut	Yes (In Process)	No	No	Ventura	Moorpark	No	No	No
Los Angeles	West Covina	No	No	No	Ventura	Ojai	No	No	No
Los Angeles	West Hollywood	Yes	Yes	Yes	Ventura	Oxnard	Yes (In Process)	No	No
Los Angeles	Westlake Village	No	No	No	Ventura	Port Hueneme	No	No	No
Los Angeles	Westside Cities COG	No	No	No	Ventura	Santa Paula	No	No	No
Los Angeles	Whittier	No	No	No	Ventura	Simi Valley	Yes	Yes	No
					Ventura	Ventura	No	No	No

Source: SCAG 2023a

In October 2023, SCAG released the [Climate Equity Compendium](#), providing available federal, state, and SCAG data resources and tools that local planners in the SCAG region can use to advocate for and implement equitable and actionable climate adaptation efforts (SCAG 2023b). The Compendium also includes relevant legislation and funding resources, highlights model policies of successful climate adaptation efforts through the SCAG region, and discusses best practices for outreach to empower residents throughout the process.

LOS ANGELES GREEN NEW DEAL

In April 2019, Mayor Eric Garcetti released a refreshed version of the City's 2015 Sustainable City Plan. The Green New Deal aims to deliver environment justice through an inclusive green economy, planning to ensure every City resident has the ability to join the green economy, and a determination to lead by example within City government. The goals and targets of the Green New Deal include:

- Building a zero-carbon electricity grid – reaching an accelerated goal of 80 percent renewable energy supply by 2036 as Los Angeles leads California toward 100 percent renewable by 2045.
- Creating a Jobs Cabinet to bring city, labor, educations, and business leaders together to support our effort to create 300,000 green jobs by 2035 and 400,000 by 2050.
- Mandating that all new municipally owned building and major renovations be all-electric, effective immediately, and that every building in Los Angeles – from skyscrapers to single-family homes – become emissions free by 2050.
- Achieving a zero-waste future by phasing out Styrofoam by 2021, ending the use of plastic straws and single-use takeout containers by 2028, and no longer sending any trash to landfills by 2050.
- Recycling 100 percent of our wastewater by 2035; sourcing 70 percent of our water locally – a significant increase from our existing pathway; and nearly tripling the maximum amount of stormwater captured.
- Planting and maintaining at least 90,000 trees – which will provide 61 million square feet of shade – citywide by 2021 and increasing tree canopy in low-income, severely heat impacted areas by at least 50 percent by 2028.

The Green New Deal aims to reach a 50 percent reduction in GHG emissions by 2025 and reach net neutrality by 2050. The Green New Deal builds upon the City's Sustainable City pLAN, in which the City met or exceeded 90 percent of the City's long-term goals on time or early, resulting in a reduction of GHG emissions by 11 percent in a single year and creating more than 35,000 green jobs (City of Los Angeles 2019).

CITY OF RIVERSIDE GREEN ACTION PLAN

The City of Riverside's Green Action Plan aims to reduce the City's environmental impact by increasing the City's renewable energy production and reduce the City's GHG emissions, waste, and water consumption. Regarding energy, the Green Action Plan includes goals to install at least 20 megawatts (MW) of photovoltaic systems by 2020, reduce the City's peak electrical load demand by 10 percent, and meet 33 percent of electricity demand from renewable sources by 2050 (City of Riverside, undated).

3.8.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to greenhouse gas emissions if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

As discussed in Section 3.17, *Transportation*, CARB and OPR previously recommended project-level VMT thresholds of significance in their guidance documents for use in evaluating traffic impacts in CEQA documents. These thresholds were intended to meet statewide GHG emissions targets through VMT reductions from the transportation sector. Both CARB and OPR have acknowledged that MPOs are tasked with meeting SB 375 per capita GHG emissions reduction targets. At the project level, lead agencies may consider CARB, OPR, and other recommended thresholds of significance as well as the 2022 Scoping Plan in determining CEQA thresholds that are appropriate and feasible for an individual project. The discussion of GHG impacts below considers the potential for the region as a whole to meet the current GHG reduction targets by the year 2035 under SB 375 and GHG reduction goals by the year 2050.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of the Plan including policies and strategies as well as potential projects to evaluate how conditions in 2050 under the Plan would differ from existing conditions. As such, the CEQA significance determination for Plan's GHG impacts is based on a comparison between future (2050) with the Plan and the 2019 actual baseline (e.g., existing conditions). The comparison of GHG impacts in the future with the Plan as compared to future with no Plan is included in Chapter 4, *Alternatives*, of this PEIR.

GHG emissions and climate change were evaluated in accordance with Appendix G of the CEQA Guidelines. GHG emissions and climate change within the SCAG region were evaluated at a programmatic level of detail, in relation to the general plans of the six counties and the 191 cities within the SCAG region and a review of related literature germane to the SCAG region. The analysis of greenhouse gases considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

CEQA Guidelines Section 15064.4 provides:

In determining the significance of a project's greenhouse gas emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national or global emissions. The agency's

analysis should consider a timeframe that is appropriate for the project. The agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes.

Furthermore, when making a determination with respect to the significance of a project's GHG emissions, a lead agency shall have discretion to determine whether to: (1) Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use; and/or (2) Rely on a qualitative analysis or performance-based standards. CEQA Guidelines Section 15064.4 also states that a lead agency should consider the following factors when assessing the significance of the impact of GHG emissions on the environment: (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting; (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

CONSTRUCTION

Implementation of Connect SoCal 2024 would result in the construction of various transportation and development projects over the Plan horizon. Construction emissions associated with each individual project will generally be short-term and are limited to the project construction phase (although some project construction phases can extend for multiple years). The sources associated with these emissions include construction equipment, employee and vendor vehicles (e.g., on-road trucks for construction material delivery), demolition, grading and other ground-disturbing activities, application of paint and other coatings, paving, among others. Since precise descriptions and locations of activities involving construction of individual projects are not reasonably foreseeable at this time, it is not possible to quantify specific project-level construction emissions. Additionally, SCAG has no land use decision-making or implementation authority over individually proposed transportation or land use projects.

OPERATIONS

The methodology for determining the significance of operational GHG emissions includes the use of SCAG's Scenario Planning Model (SPM) and transportation and air emission modeling in order to estimate GHG emissions from energy, water, and transportation. GHG emissions and transportation data were projected to 2050 using SCAG's activity-based Regional Travel Demand Model and CARB's EMFAC2021 emissions model. Estimates of energy and water use are based on current demand factors and emission rates associated with current power generation operations and water supply. Residential and commercial building electricity emissions for future year 2050 account for improved electricity energy efficiency and renewable electricity. Operational GHG impacts related to increased infrastructure improvements to support zero-emission and near-zero vehicles including charging stations are analyzed in CARB's Final Environmental Analysis for the Proposed Advanced Clean Trucks Regulation. The following GHG analysis incorporates, where appropriate, CARB's analysis of GHG impacts related to infrastructure improvements and discusses the impacts qualitatively by explaining how the GHG analysis incorporates CARB's analysis.

Analysis of the potential GHG impacts of Connect SoCal 2024 was conducted based on regional-level modeling of mobile-source emissions and gross estimates of stationary source emissions. It is anticipated that increasingly stringent regulations, changes in technology combined with future conservation (as a result of increased pressure to conserve and increased prices) will result in a reduced demand for all types of energy, including mobile and stationary sources (as well as reduced demand for water and associated energy requirements). As energy providers

and other sectors respond to SB 32 and CARB's 2022 Scoping Plan, emission rates associated with energy use are anticipated to decrease. However, to present a conservative analysis and without knowledge of future regulations, clean fuel or transportation technologies or market drivers, only modest reductions in demand are assumed. While the analysis considers regulations, programs, and policies currently in place, there is substantial uncertainty in projecting emissions for future horizon years, particularly beyond 2035. Additionally, it is important to note that GHG impacts are generally cumulative in nature, and unlike the localized air quality impacts, they have broader (i.e., statewide, national, and global) implications. See *Center for Biology Diversity v. Dept. of Fish & Wildlife*, 62 Cal.4th 204, 220 (2015) (Characterizing the state's GHG emissions as a "cumulative problem").

LIFECYCLE ANALYSIS

CEQA does not require a full lifecycle analysis of potential environmental effects. This is because the impact analysis in CEQA is subject to the rule of reasons. CEQA only requires analysis of impacts that are directly, indirectly, or cumulatively attributable to the project under consideration (CEQA Guidelines Section 15064(d)). Lifecycle analysis in general may not be consistent with CEQA because the term "lifecycle" could refer to GHG emissions beyond those that could be considered "indirect effects" or "cumulatively considerable" of a project under CEQA Guidelines Section 15358. Furthermore, the California Natural Resources Agency has indicated that a lifecycle analysis is not necessary to adequately analyze a project's energy or GHG impacts (CNRA 2009b). This was added to the CEQA Guidelines to place a reasonable limit on the analysis and signal that a full lifecycle analysis will generally not be required. Preparing a "lifecycle" analysis for the Plan would also be speculative given that there are a myriad of different transportation and land use strategies to support the Plan's vision and achieve its goals. For all of these reasons, the 2024 PEIR does not attempt to provide such a lifecycle GHG emission analysis.

SB 375 ANALYSIS

SB 375 requires passenger and light-duty vehicle per capita GHG emission reductions attributed to the SCS to meet state-established targets for the region. As described in the Regulatory Framework, SB 375 requires CARB to develop regional GHG emission reduction targets for cars and light-duty trucks for 2020 and 2035 (compared to 2005 emissions) for each of the state MPOs on a per capita basis. Each MPO is required to prepare an SCS as part of the RTP in order to meet these GHG emissions reduction targets by aligning transportation, land use, and housing strategies with respect to SB 375. For SCAG, the targets are to reduce per capita GHG emissions by 8 percent below 2005 per capita levels by 2020 and 19 percent below 2005 per capita levels by 2035. Determining the per capita GHG emissions requires modeling VMT by passenger vehicles and light trucks that emit CO₂¹⁴ and dividing the number by the total population. SB 375 consistency and per capita calculations were conducted using the on-road VMT and population from SCAG's modeling and emission factors from the then-USEPA-approved EMFAC2014 (the same model used for the target-setting process) as directed by CARB for SB 375 consistency analysis purposes (CARB and SCAG 2022). Additional analysis was done for strategies to which SCAG's model is not sensitive. These methodologies are detailed in SCAG's SCS Technical Methodology submitted to CARB and for which emission factors from CARB's latest USEPA-approved EMFAC2021 (approved in November 2022) are used to calculate GHG emission reductions. For purposes of analyzing total on-road vehicle emissions, EMFAC2021 was used to calculate GHG emission reductions.

¹⁴ SB 375 GHG emissions are reported in CO₂ from the EMFAC model.

MITIGATION MEASURES

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies, some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan. See CEQA Guidelines Section 15126.4(a)(1)(B). As discussed in Section 3.0, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT GHG-1 **Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.**

IMPACT GHG-2 **Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.**

Significant and Unavoidable Impact (Except for Plan's Consistency with SB 375) – Mitigation Required

As discussed in Section 3.0, *Introduction to the Analysis*, due to the interrelationship of the threshold topic areas, Impacts GHG-1 and GHG-2 are addressed together.

Pursuant to Appendix G of the CEQA Guidelines, a significant GHG impact would occur if the Plan would generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. While transportation sector (specifically on-road mobile sources) GHG emissions resulting from implementation of the Plan are anticipated to decrease compared to existing conditions, they are not anticipated to be reduced sufficiently to meet the GHG emissions reduction targets established for California. Moreover, while the Plan will meet the SB 375 GHG reduction targets set by CARB for SCAG, CARB has indicated that achievement of such regional targets is insufficient for the transportation sector to meet the state's overall GHG reduction goals. As such, GHG emissions from the Plan may have a significant impact on the environment.

CONNECT SOCIAL 2024 GHG EMISSIONS – OVERVIEW

CONSTRUCTION EMISSIONS

The construction of projects requires use of vehicles and equipment that consume fuel and emit GHGs for construction activities (worker commutes and materials transport emissions are accounted for within the on-road emissions analysis above). Earth-moving equipment is often necessary to construct new transportation and development projects. Equipment includes graders, scrapers, backhoes, jackhammers, front-end loaders, generators, water trucks, and dump trucks. Construction-related GHG emissions for each individual project are temporary and last only for the duration of construction of that project, but on a regional scale construction is an on-going source of GHG emissions. Quantification of short-term construction related GHG emissions is generally based on the size of each project, the equipment used and the construction schedule. Such detailed information

is not available on a regional scale. Construction emission estimates are not reasonably foreseeable because the nature of construction activity is so variable. Generally, due to relatively short-term nature of construction activities of projects as compared to the project's overall lifetimes, the construction emissions are assumed to contribute a relatively small portion of overall lifetime project GHG emissions (SCAQMD 2008b).

Implementation of the Plan would result in the construction of various projects. Connect SoCal 2024 includes transportation projects which promote increased public transit ridership, improved connectivity to public transit lines, increased active transportation opportunities and facilities, and traffic congestion management. See the Project List Technical Report for Connect SoCal 2024 for a complete list of the Plan's transportation projects. Construction activities associated with these transportation projects and other potential development projects envisioned under the Plan would result in GHG emissions. Emissions associated with each individual project are generally short-term and are limited to the project construction phase. The sources associated with these emissions include construction equipment, employee and vendor vehicles, demolition, grading and other ground-disturbing activities, application of paint and other coatings, paving, and others. Typically, larger projects are associated with larger emissions during construction.

Plan implementation may also include electric and hydrogen vehicle charging stations, recycling facilities for batteries as combustion engines are phased out and near-zero and zero-emissions vehicles are adopted, and modification of existing facilities to accommodate alternative-fueled vehicles. In addition, roadway and transit construction materials, such as asphalt, concrete, surface treatments, steel, rail ballast, as well as building materials, could potentially emit GHG emissions, and would likely be used in projects that involve new construction or replacement of older materials. While GHG emissions would be required to complete construction for any new or modified facilities or infrastructure projects, construction would be temporary and limited in magnitude. In addition, in this case, the temporary construction GHG emissions is to, in the long-term, allow for a transition for the transportation and construction sectors to emit less GHG emissions.

OPERATIONAL EMISSIONS

Implementation of the Plan would result in the long-term operation of transportation and potential development projects. The region is anticipated to experience substantial increases in population, households, and jobs by 2050 (see Section 3.14, *Population and Housing*). Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies that seek to balance that the region's land use choices and transportation investments to accommodate the region's growth. The Plan focuses new growth and development in PDAs, which include NMAs, Livable Corridors, TPAs, and Spheres of Influence and incorporates strategies to increase walking, biking, or other forms of active transportation.

Changes in technology are anticipated to complement transportation projects and strategies in further reducing GHG emissions. The location-based land use strategies, street design policies, and pricing and system management policies would reduce GHG emissions. Integration of changing technologies with proposed strategies would enhance the effects of the strategies. For example, in order to support an increase in alternative fuel vehicles, SCAG's multi-tier approach includes encouraging electric vehicle (EV) charging at public fast charging locations, workplaces, and multi-family housing (land use strategy), encouraging curbside EV charging stations and parking (street design policy), and providing rebates for charging stations and EVs (pricing and system management policy).

Because of the anticipated increase in compact and higher density development, less energy (e.g., multi-family housing units are insulated by each other and, therefore, require less heating and cooling as compared to single

family units) and less water (e.g., multi-family units have less landscaping requiring irrigation as compared to single-family units) is expected to be used and would contribute to the reduction in GHG emissions (see Table 3.6-1, Residential Energy Use and Cost per Household, and Table 3.6-3, Building Energy Consumption – Residential and Commercial, in Section 3.6, *Energy*, of this 2024 PEIR).

GHG emissions result from direct and indirect sources. Direct emissions in the transportation sector derive from fuel combustion in vehicles (i.e., automobiles, trucks, trains, buses, planes, ships, and trains) and natural gas combustion from stationary sources. Indirect sources include off-site emissions occurring from electricity from stationary sources. Indirect sources include off-site emissions occurring from electricity, water consumption and solid waste. On-road transportation emissions include fuel consumption from passenger vehicles, heavy-duty trucks, buses, and other motor vehicles. Transportation accounts for the greatest proportion of GHG emissions on a regional and state level. Connect SoCal 2024 includes transportation network improvements and encourages more compact, infill, walkable, and mixed-use development strategies to accommodate new region's growth to accommodate increases in population, housing, employment, and travel demand. Additionally, Connect SoCal 2024 includes improvements to the active transportation network as well as passenger and rail to decrease fuel emissions.

In addition, transportation projects that could occur as a result of Plan implementation include electric and hydrogen vehicle charging stations, recycling facilities for batteries as combustion engines are phased out and near-zero and zero-emissions vehicles are adopted, and modification of existing facilities to accommodate alternative-fueled vehicles. While GHG emissions would initially be emitted due to electricity usage for any new or modified facilities or infrastructure projects, in the long-term, with the RPS regulations described above, an increasing amount of the electricity used would be renewable and not emit GHGs. In addition, this would promote a continued shift away from petroleum-based fueled vehicles toward the use of zero-emissions or near-zero-emissions vehicles and the expansion of the charging station network in the state in order for the transportation sector to emit less GHG emissions.

TRANSPORTATION EMISSIONS

In order to assess the impacts of direct emissions as a result of Connect SoCal 2024, the transportation emissions from on-road (light and medium duty vehicles, heavy duty vehicles, and buses) and other sources transportation (rail, aviation, and ocean-going vessels) were evaluated in **Table 3.8-7, Greenhouse Gas Emissions from All On-Road Vehicles in the SCAG Region**, and **Table 3.8-8, Greenhouse Gas Emissions from Other Transportation Sources in the SCAG Region**. **Table 3.8-9, Greenhouse Gas Emissions from All On-Road Vehicles and Other Transportation Sources in the SCAG Region**, provides a summary of Table 3.8-8 and Table 3.8-9 to demonstrate that the SCAG region will decrease mobile-source GHG emissions by approximately 28 percent from 2019 to 2050.

TABLE 3.8-7 Greenhouse Gas Emissions from All On-Road Vehicles in the SCAG Region
(million metric tons per year)

ON-ROAD VEHICLES	2019 (MMT/YEAR)			2030 (PLAN) (MMT/YEAR)			2045 (PLAN) (MMT/YEAR)			2050 (PLAN) (MMT/YEAR)		
	CO2	CH4	NO2	CO2	CH4	NO2	CO2	CH4	NO2	CO2	CH4	NO2
Light- and Medium-Duty Vehicles	49.30	0.0025	0.0010	37.39	0.0011	0.0004	32.91	0.0007	0.0002	32.97	0.0007	0.0002
Heavy-Duty Vehicles	12.64	0.0005	0.0014	11.90	0.0003	0.0006	9.75	0.0002	0.0005	10.82	0.0002	0.0005
Buses	1.54	0.0008	0.0001	1.22	0.0008	<0.0001	0.61	0.0001	<0.0001	0.58	0.0001	<0.0001
<i>Subtotal On-Road Vehicles in CO2</i>	<i>63.48</i>	<i>0.0039</i>	<i>0.0026</i>	<i>50.51</i>	<i>0.0023</i>	<i>0.0010</i>	<i>43.27</i>	<i>0.0010</i>	<i>0.0007</i>	<i>44.37</i>	<i>0.0009</i>	<i>0.0008</i>
<i>Subtotal On-Road Vehicles in CO2e*</i>	<i>63.48</i>	<i>0.0810</i>	<i>0.7943</i>	<i>50.51</i>	<i>0.0474</i>	<i>0.3174</i>	<i>43.27</i>	<i>0.0212</i>	<i>0.2294</i>	<i>44.37</i>	<i>0.0199</i>	<i>0.2423</i>
Total GHG Emissions from On-Road Vehicles in CO2e	64.35			50.87			43.52			44.64		

Source: SCAG Modeling (2023)

Table Note:

* CO2 was converted to CO2e based on the [Global Warming Potential \(GWP\)](#) (CARB, undated[b]).

TABLE 3.8-8 Greenhouse Gas Emissions from Other Transportation Sources in the SCAG Region
(million metric tons per year)

OFF-ROAD VEHICLES**	2019 (MMT/YEAR)			2030 (PLAN) (MMT/YEAR)			2045 (PLAN) (MMT/YEAR)			2050 (PLAN) (MMT/YEAR)		
	CO2	CH4	NO2	CO2	CH4	NO2	CO2	CH4	NO2	CO2	CH4	NO2
Rail	—	<0.0001	0.0006	—	<0.0001	0.0007	—	<0.0001	0.0004	—	<0.0001	0.0004
Aviation***	1.29	—	—	1.66	—	—	2.17	—	—	2.34	—	—
Airport Ground Support (GSE)	0.11	<0.0001	<0.0001	0.13	<0.0001	<0.0001	0.15	<0.0001	<0.0001	0.15	<0.0001	<0.0001
Ocean-Going Vessel	0.42	<0.0001	0.0002	0.43	<0.0001	0.0001	0.55	<0.0001	0.0001	0.57	<0.0001	0.0001
<i>Subtotal Other Transportation Sources</i>	<i>1.82</i>	<i><0.0001</i>	<i>0.0008</i>	<i>2.23</i>	<i><0.0001</i>	<i>0.0009</i>	<i>2.86</i>	<i><0.0001</i>	<i>0.0005</i>	<i>3.05</i>	<i><0.0001</i>	<i>0.0005</i>
<i>Subtotal Other Transportation Sources in CO2e*</i>	<i>1.82</i>	<i>0.0007</i>	<i>0.2522</i>	<i>2.23</i>	<i>0.0007</i>	<i>0.2798</i>	<i>2.86</i>	<i>0.0005</i>	<i>0.1699</i>	<i>3.05</i>	<i>0.0005</i>	<i>0.1526</i>
Total GHG Emissions from Off-Road Vehicles in CO2e*	2.07			2.51			3.03			3.21		

Source: SCAG Modeling (2023); SCAQMD 2016

Table Notes:

* CO2 was converted to CO2e based on the [Global Warming Potential \(GWP\)](#) (CARB, undated[b]).

** Rail, aviation and ocean-going vessels are regulated at the federal level. Airport Ground Support (GSE) sources are regulated at the state level. Rail CO2 emissions are not available.

*** Aviation CO2 MMT values linearly interpolated from presented years 2012 and 2040 from the SCAQMD Aircraft Emission Inventory (August 2016). This study includes Burbank, John Wayne, Long Beach, LAX, Ontario and Palm Springs which are a substantial fraction of the entire SCAG region. These airports represent 99.99% of the passenger traffic and 99.96% of cargo volume from commercial airports in the region in 2019 (see the 2024 PEIR Aviation Noise Technical Report for additional details). Note CH4 and N2O not presented. Aviation GHG emissions from other air basins unavailable.

TABLE 3.8-9 Greenhouse Gas Emissions (CO₂e) from All On-Road and Other Transportation Sources in the SCAG Region (million metric tons per year)

	2019 BASE YEAR	2030 (PLAN)	2045 (PLAN)	2050 (PLAN)
Total GHG Emissions from On-Road Vehicles in CO ₂ e	64.35	50.87	43.52	44.64
Total GHG Emissions from Other Transportation Sources in CO ₂ e*	2.07	2.51	3.03	3.21
All Transportation Sector (On-Road and Other Sources) in CO₂e	66.42	53.38	46.55	47.84
<i>2030, 2045, 205 Plan vs. 2019 Base Year</i>		-19.6%	-29.9%	-28.0%

Source: SCAG Modeling (2023)

Table Notes: CO₂ was converted to CO₂e based on the [Global Warming Potential \(GWP\)](#) (CARB, undated[b]).

* Emission sources include rail, aviation, GSE, and ocean-going vessels. Rail, aviation, and ocean-going vessels are regulated at the federal level. Airport Ground Support (GSE) sources are regulated at the state level.

Between 2019 and 2050, GHG emission from on-road mobile sources and other transportation sources, inclusive of light and medium duty vehicles and heavy-duty trucks, would decrease by approximately 28 percent (on-road also would decrease by approximately 31 percent). The largest decreases would occur in the most populous counties—Los Angeles, Orange, and Ventura Counties (**Table 3.8-10, Greenhouse Gas Emissions Light-, Medium-, and Heavy-Duty On-Road Vehicle Transportation by County and Other Transportation Sources in the SCAG Region [CO₂e]**). As shown in TABLE 3.8-8, Aviation, Airport Ground Support (GSE) and OGV GHG emissions are expected to increase between 2019 and 2050.

TABLE 3.8-10 Greenhouse Gas Emissions Light-, Medium-, and Heavy-Duty On-Road Vehicle Transportation by County and Other Transportation Sources in the SCAG Region (CO₂e) (million metric tons per year)

COUNTY	2005 BASE YEAR	2019 PEIR BASE YEAR	2030 PLAN	2045 PLAN	2050 PLAN	2019 COMPARED TO PLAN YEAR (2050)	2005 COMPARED TO PLAN YEAR (2050)
Light-, Medium-, and Heavy-Duty On-Road Vehicle Transportation							
Imperial	1.27	1.27	1.10	1.06	1.10	-12.7%	-13.0%
Los Angeles	42.47	31.07	23.85	19.97	20.10	-35.3%	-52.7%
Orange	12.77	10.17	7.73	6.47	6.51	-36.0%	-49.0%
Riverside	10.70	9.03	7.75	7.08	7.71	-14.6%	-28.0%
San Bernardino	11.84	9.66	7.96	7.33	7.64	-20.9%	-35.5%
Ventura	3.34	1.57	1.23	0.99	0.99	-37.0%	-70.4%
SCAG Subtotal	82.39	62.76	49.62	42.90	44.05	-29.8%	-46.5%
Other Transportation							
Bus (Region)	-	1.59	1.25	0.62	0.59	-63.0%	-
Rail (Region)	-	0.20	0.23	0.14	0.12	-38.1%	-
Aviation*	-	1.29	1.66	2.17	2.34	81.3%	-
Airport Ground Support (GSE)	-	0.12	0.14	0.16	0.16	32.7%	-
OGV (Region)	-	0.47	0.48	0.57	0.59	26.8%	-
Total All Sectors		66.42	53.38	46.55	47.84	-28.0%	-

Source: SCAG Modeling (2023)

Table Note: On-Road Transportation sources include light- and medium-duty vehicles and heavy-duty trucks.

No Plan emissions were not presented as they incrementally as compared to Plan emissions. For discussion of emissions related to Plan Alternatives please refer to Chapter 4, *Alternatives*, of this PEIR.

* Aviation CO₂ MMT values linearly interpolated from presented years 2012 and 2040 for the SCAQMD. Note CH₄ and N₂O not presented. Aviation GHG emissions from other jurisdictions unavailable.

Other Transportation Sources include bus rail, aviation, GSE, and ocean-going vessels. Rail, aviation, and ocean-going vessels are regulated at the federal level. Airport Ground Support (GSE) sources are regulated at the state level.

TOTAL GHG EMISSIONS IN SCAG REGION

In order to get a better estimate of total GHG emissions, emissions from other major sectors (energy and water consumption) in addition to transportation are considered in the analysis below.

As previously stated, Connect SoCal 2024 focuses growth within existing urban regions and growth opportunity areas, where transit and infrastructure are already in place. Locating new growth near bikeways, greenways, and transit would increase active transportation options and the use of other transit modes (public transit, carpooling), thereby reducing number of vehicle trips and trip lengths and associated emissions. The land use strategies included in the Plan would encourage higher density development in existing urban cores and opportunity areas which would encourage more multi-family and/or mixed-use projects, via vertical development, instead of the

traditional single-family home development. Compact development and utilization of conservation strategies (i.e., exceed Title 24 building codes, LEED certification), would reduce energy and water consumption.

GHG emissions for building energy were calculated in SCAG’s Scenario Planning Model (SPM) based on a factor of 16.10 pounds (lb) CO₂e/therm for natural gas to estimate 2019 and 2050 emissions and 0.51 lb CO₂e/kilowatt-hour (kWh) and 0.19 lb CO₂e/kWh for electricity to estimate 2019 and 2050 emissions, respectively. Indoor and outdoor water-related energy¹⁵ were based on factors of 13,587 kWh/MG and 11,593 kWh/MG, respectively for 2019 and 2050. Water related energy includes the electricity used in the transport, treatment, and distribution of water. However, the analysis below does not account for changing sources of emissions that would reduce GHG emissions per kilowatt hour, nor does it account for improved technology that would reduce consumption of energy. The below analysis also does not account for reductions in water demand as a result of conservation. The analysis presented in **Table 3.8-11, Greenhouse Gas Emissions for the SCAG Region from Three Primary Sources (CO₂e) (million metric tons per year)**, illustrates how a more compact growth pattern can reduce GHG emissions. Regulations, as well as technological and other reductions are anticipated to substantially reduce emissions compared to what is shown in Table 3.8-10.

TABLE 3.8-11 Greenhouse Gas Emissions for the SCAG Region from Three Primary Sources (CO₂e)
(million metric tons per year)

AREA	2005 BASE YEAR	2019 BASE YEAR	2030 PLAN	2045 PLAN	2050 PLAN	2019 VS 2050 PLAN	2005 VS 2050 PLAN
Transportation ^a	82.39	66.42	53.38	46.55	47.84	-28.0%	-41.9%
Building Energy ^b	44.50	64.64	57.30	47.30	43.97	-32.0%	-1.20%
Water-Related Energy ^c	3.82	2.89	2.26	1.40	1.12	-61.3%	-70.8%
Total	130.71	133.95	112.94	95.26	92.93	-30.6%	-28.9%

Source: SCAG Modeling (2023)

Table Notes:

The Scenario Planning Model provides estimates of energy and water consumption; it is a scenario planning tool used for developing scenarios for the Plan during the scenario planning process to compare relative differences among scenarios and does not account for emissions reductions from cleaner fuels and technologies in the future.

The estimates of GHG emissions in this table do not include the following sources: construction, solid waste, agriculture, wildfires, industrial process or other sources.

- a. Transportation emissions include On-Road and Other Transportation Sources. On-Road Transportation sources include light- and medium-duty vehicles and heavy-duty trucks. On-road transportation based on EMFAC and conversion from CO₂ to CO₂e. Other Transportation Sources include bus rail, aviation, GSE, and ocean-going vessels. Rail, aviation, and ocean-going vessels are regulated at the federal level. Airport Ground Support (GSE) sources are regulated at the state level. Note, transportation source emissions from the 2005 Base Year do not include emissions from Other Transportation Sources as these emissions are unavailable.
- b. Includes estimates of emissions from energy used in the region but generated outside the region. Values for 2030 and 2045 are linearly interpolated from SCAG SPM Modeling results for year 2019 and 2050. The 2005 base year value is from the 2012 RTP/SCS PEIR.
- c. Water related estimates of energy consumption includes the electricity used in the transport, treatment, and distribution of water. Values for 2030 and 2045 are linearly interpolated from SCAG SPM Modeling results for year 2019 and 2050. The 2005 base year value is from the 2012 RTP/SCS PEIR.

As shown in Table 3.8-11, the total GHG emissions from transportation, building and water-related energy are anticipated to decrease by 30.6 percent with Connect SoCal 2024 in 2050 compared to existing (2019) conditions. GHG emissions associated with building energy and water-related energy consumption are presented in Table 3.8-10. SCAG Scenario Planning Model accounts for GHG emissions associated with these sources. In addition, it is important to note that the Plan has no control over the fuels used by vehicles in the region or the

¹⁵ Water related energy includes the electricity used in the transport, treatment, and distribution of water.

types of vehicles used. As outlined in CARB's 2020 Mobile Source Strategy, changes to fuel type and types of vehicles are anticipated to result in additional substantial reductions in GHG from the transportation sector. Note that the analysis above does not include emissions from construction equipment, agricultural operations, industrial processes, wildfires, and other unique sources.

INDUSTRIAL, AGRICULTURAL, AND OTHER SOURCES

It is also important to note that the Plan is primarily a transportation plan with land use strategies. SCAG currently does not collect information regarding industrial, agricultural, and other sources, rather these sources of emissions are addressed by air quality management districts as part of the preparation of air quality management plans. For example, the SCAQMD's 2022 AQMP uses an integrated approach to reduce criteria air pollutants, toxic pollutants, and GHG emissions. A large portion of GHG and air pollutant emissions come from the transportation and energy sectors. Industrial facilities consume approximately 10 percent of energy in the SCAB region, therefore contributing to a significant portion of GHG emissions (SCAQMD 2017a). The previous SCAQMD's 2016 AQMP proposes to modernize industrial facilities, promotes equipment electrification, and incorporating newer technologies such as smart grids and solar panels to reduce the reliance on fossil fuel without generating more emissions from electricity use (SCAQMD 2017a). In the SCAQMD's 2022 AQMP, there is continued emphasis on emissions reduction and modernization in the industrial sector. The 2022 AQMP includes 31 (or 49 total) control measures that target stationary sources, including those in the industrial sector; 10 strategies focus specifically on Large Combustion Source Measures that reduce emission from industrial facilities (SCAQMD 2022).

WILDFIRES

In 2019, 7,148 fires burned 277,285 acres of California land and destroyed 732 structures (CAL FIRE 2019a). The Maria Fire in October 2019, burned approximately 9,999 acres and destroyed four structures in Ventura County, representing the largest fire of that year within the SCAG region (CAL FIRE 2019b). California's 2019 wildfires emitted approximately 4.8 MMTCO_{2e}, which represents about 1 percent of California's total GHG emissions that year as compared to the prior year where it was approximately 10 percent (39.1 MMTCO_{2e} from wildfires as compared to 411.0 MMTCO_{2e} emitted in total by the state) (CARB 2022b, Undated[a]). Estimating GHG emissions from wildfires is highly unpredictable and beyond the scope of this PEIR. However, it is likely that wildfires and their associated emissions will continue to be a substantial source of emissions in future years as climate change leads to a longer and more intense fire season (CARB 2022b).

CONNECT SOCAL 2024 CONSISTENCY WITH GHG REDUCTION PLANS AND POLICIES

COMPLIANCE WITH SB 375

Pursuant to CEQA Guidelines Appendix G, a significant GHG impact is identified if the Plan could conflict with applicable GHG reduction plans, policies, or regulations. SB 375 requires each of the State MPO to meet its per capita GHG emission reductions by 2020 and 2035 as compared to the base year of 2005. AB 32 and SB 32 are statewide reduction goals aimed at reducing emissions to 1990 levels by 2020 and reducing emissions to at least 40 percent below 1990 levels by 2030, respectively. However, as mentioned above, both CARB and OPR have acknowledged that MPOs are tasked with meeting SB 375 per capita GHG emissions reduction targets. Each MPO is required to prepare an SCS as part of the RTP in order to meet its assigned GHG emissions reduction targets by aligning transportation, land use, and housing strategies with respect to SB 375.

As described in the Regulatory Framework, SB 375 requires CARB to develop regional GHG emission reduction targets for cars and light-duty trucks for 2020 and 2035 (compared to 2005 emissions) for each of the state MPOs

on a per capita basis. Each MPO is required to prepare an SCS as part of the RTP to meet these GHG emissions reduction targets by aligning transportation, land use, and housing strategies with respect to SB 375. For SCAG, the targets are to reduce per capita GHG emissions by 8 percent below 2005 levels by 2020 and 19 percent below 2005 levels by 2035. Determining the per capita GHG emissions requires modeling VMT by passenger vehicles and light trucks that emit CO₂¹⁶ and dividing the number by the total population. Based on the Plan's GHG analysis, the Plan has achieved the 8-percent per capita GHG emissions target for 2020 as set by CARB for the SCAG region for SB 375 purposes and will meet the 19 percent per capita GHG target for 2035 as discussed in Connect SoCal 2024, Performance Monitoring Technical Report (summarized in Table 13).

Decreased travel during the COVID-19 pandemic most likely helped achieve (and exceed) the 2020 target. In fact, the total VMT for the SCAG Region in 2020 was 10.9 percent lower than in 2019. By 2035, the Plan is projected to achieve the 19 percent below the 2005 level per capita GHG emissions target. Note that the Plan's SB 375 GHG emissions analysis was based on EMFAC2014 (the same model used for the target-setting process) as directed by CARB for SB 375 consistency analysis purposes (CARB and SCAG 2022) and included SCAG's modeling and off-model adjustments for 2035. In sum, the Plan has met the State requirements for RTP/SCS under SB 375 and is considered not in conflict with SB 375.

CARB has not set per capita GHG emission reduction targets for passenger vehicles for the Plan's horizon year (2050). While the Plan is expected to meet its GHG emissions reduction targets for 2020 and 2035 pursuant to SB 375 which represent the region's share of on-road transportation emission reductions as currently identified by CARB, as discussed above, there remains a gap between what the targets achieved and the necessary reductions in GHG from the on-road transportation sector. ZEVs and other emission controls are expected to partially address this gap, and CARB encourages local jurisdictions to further reduce per capita VMT. In addition, implementation of the Plan's Regional Planning Policies and Implementation Strategies throughout the lifetime of the Plan (beyond 2035) including investments and strategies in transit improvements, traffic congestion management, emerging technology, and active transportation within the SCAG region will lead to further GHG reductions by 2050. Thus, the Plan would not be in conflict with SB 375.

SB 743 AND VMT GUIDANCE

Table 3.8-12, Population and Daily VMT (2019 and 2050), presents information related to population, daily VMT and VMT per capita for the years 2019 and 2050.¹⁷

¹⁶ SB 375 GHG emissions are reported in CO₂ from the EMFAC model.

¹⁷ Beyond the Baseline and Plan year of 2019 and 2050, the analysis years were selected in order to provide a comparison to CARB's 2022 Scoping Plan conclusion that a per capita reduction of at least 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045 in light-duty VMT is needed to reduce overall transportation energy demand and meet the state's climate, air quality, and equity goals.

TABLE 3.8-12 Population and VMT (2019 and 2050)

	2019	2050	2050 VS 2019
Total Population	18,827,000	20,882,000	10.9%
Light Duty Vehicle VMT	413,969,000	407,065,000	-1.67%
Total VMT	444,240,000	450,428,000	1.39%
VMT Per Capita Light Duty Vehicles	21.99	19.49	-11.4%
VMT Per Capita All Vehicles	23.60	21.57	-8.6%

Source: SCAG modeling (2023)

As discussed in Section 3.17, *Transportation*, the region is making progress in per capita VMT reductions and is also making significant strides in the development of new initiatives, projects, policies, and strategies in the Plan to support, and align with AB 32 and SB 32 (as well as associated SB 743 guidance) GHG reduction goals. Although the Plan is not directly interfering with the statewide VMT reductions required to meet the state’s climate goals, given the “gap” between the current MPOs current emissions reductions targets and the emissions/VMT reductions necessary to meet the state’s climate action goals, additional progress from regional transportation planning by MPOs is needed.

CARB acknowledges that SCAG and other MPOs cannot meet necessary GHG reductions from the transportation sector without the collaboration and help of the state itself (i.e., through stricter regulation), as well as local partners. At the time of preparing this 2024 PEIR it is unknown how CARB and other state agencies, through statewide programs or in coordination with local and regional governments, would meet the identified higher VMT reductions. It is expected that jurisdictions will need to review their projects in light of previous CARB and OPR guidance as well as the 2022 Scoping Plan with respect to VMT reduction targets to determine the appropriate levels of reductions. Neither the agencies nor the courts have provided any clear guidance yet as to the appropriate methodology, and it is expected that there will not be a “one size fits all” approach. Each project will need to be evaluated in light of its particular components and the latest information available from CARB and other sources.

COMPLIANCE WITH AB 32 AND SB 32

As noted in Section 3.8.2, *Regulatory Framework*, AB 32 requires the state to reduce GHG emissions to 1990 levels by 2020. SB 32 was signed into law to further reduce GHG emissions and requires the state to reduce GHG emissions to at least 40 percent below 1990 levels by 2030. The Scoping Plans, particularly the most recently adopted 2022 Scoping Plan, function as roadmaps for the state to achieve near- and long-term GHG reductions. Because the Plan focuses on meeting a portion of the state’s requirements on the transportation sector (i.e., passenger vehicles and light-duty trucks) with respect to regional transportation plans and integrated land use strategies pursuant to SB 375, the Plan does not include strategies or show GHG reductions for all the AB 32 and SB 32 Scoping Plans strategies that address a broad range of economic sectors. In addition, as stated in CARB’s 2018 Progress Report, California as a whole has met its 2020 climate target ahead of schedule.

The Plan includes transportation improvements to be integrated and coordinated with land use patterns that support reduced congestion, reduced VMT, and increased transit, walking, and biking options. In 2050 under the Plan, GHG emissions for the SCAG region from the three primary sources—transportation, building energy, and water-related energy are all anticipated to decrease as compared to 2005 (see Table 3.8-11).

TRANSPORTATION SOURCES – LIGHT DUTY VEHICLES

This Plan alone is not intended to meet AB 32 and SB 32 emission reduction targets alone. By meeting the SB 375 targets, the Plan has contributed its regional share to meeting the AB 32 and SB 32 climate goals. As discussed above, the Plan has met its per capita GHG emissions reduction targets from cars and light-duty trucks of approximately 8 percent by 2020 and approximately 19 percent by 2035 per SB 375. Given that the primary statutory responsibility of Connect SoCal 2024 is to achieve SB 375 targets, which it does in both 2020 and 2035, and that the goals set forth by AB 32 and SB 32 are intended to be achieved by all the responsible sectors, the Plan has successfully contributed its regional share of GHG emission reduction. Therefore, the Plan itself is not in conflict with AB 32 or SB 32.

Note, however, as mentioned above, CARB determined that if the state's 18 MPOs' all met the SB 375 GHG cars and light-duty trucks emission reduction targets set by CARB in 2018, a 19 percent reduction in per capita VMT (from cars and light-duty trucks) would be achieved by 2035 (as compared to 2005) (CARB 2018c). In the 2018 target re-setting report, CARB indicated that to meet the statewide reduction goals set forth by SB 32 and the 2017 Scoping Plan, the state would need to reduce per capita GHG emissions from cars and light-duty trucks by 25 percent by 2035, resulting in a 6 percent gap between the 19 percent emissions reductions targets set for the regions (averaged for the 18 MPOs and compared to a baseline year of 2005). Therefore, even with meeting CARB's 2018 SB 375 GHG emissions reduction targets, a 6 percent gap compared to the state's 25 percent reduction need remains.

CARB has previously noted in setting the 2018 SB 375 emission reduction targets, "[a]n RTP/SCS that meets the applicable SB 375 targets alone will not produce the GHG emissions reductions necessary to meet state climate goals in 2030 nor in 2050" (CARB 2018c). CARB has also noted that greater reductions in VMT will be required to make up the 6 percent gap in GHG reductions. It will take collaboration among all these levels of government to identify the additional VMT reductions needed to achieve the state's climate goals because MPOs do not have the land use authority or resources to meet challenge alone.

Given the state's emphasis on VMT reduction as a key strategy to achieve additional GHG reductions needed from cars and light-duty trucks (in addition to SB 375 targets), and in recognition of the climate change benefits that occur from reduced VMT resulting in reductions in GHGs, the projected land use pattern encouraged under the Plan supports PDAs. However, SCAG lacks the land use authority to enforce specific land uses. Implementation of the projected land use pattern under the Plan is within the purview of local agencies. As described in Chapter 2, *Project Description*, in order to incentivize implementation, SCAG has established several programs that support transit-oriented development in the region. For example: promoting congestion pricing, implementing complete streets strategies, and improving connectivity between existing transit systems.

In sum, while overall, California has met its AB 32 2020 climate target four years ahead of schedule due to advances in the energy sector, the transportation sector has not seen the same gains and still constitutes approximately 40 percent of the state's emissions. Emissions from the transportation sector have continued to rise despite increases in fuel economy and decreases in the carbon content of fuel (CARB 2017c).

OTHER SOURCES

GHG emissions from sectors other than cars and light-duty trucks are anticipated to be reduced in future years due to the implementation of statewide regulations and policy directed at reducing emissions (see Table 3.8-10). For example, emissions from agriculture and the solid waste sector may be reduced through regulatory requirements of SB 1383, which requires a 75 percent reduction in the level of statewide disposal of organic waste

compared to 2014 by 2025. SB 100, the 100 Percent Clean Energy Act of 2018 also requires that the state's electricity sector achieve carbon neutrality by 2045 with benchmark targets of 50 percent renewable energy by 2026 and 60 percent by 2030. However, while these reductions are expected, implementation of statewide regulations is beyond the scope of SCAG's authority.

The 2022 Scoping Plan is the most comprehensive and far-reaching Scoping Plan developed to date. It identifies a path (though not prescribed) to achieve new targets for carbon neutrality by 2045 and to reduce anthropogenic GHG emissions to at least 85 percent below 1990 levels, while also assessing the progress California is making toward reducing its GHG emissions by at least 40 percent below 1990 levels by 2030, as called for in SB 32 and laid out in the 2017 Scoping Plan (CARB 2017b).

Implementation of development projects with the Plan would be subject to Title 24 Building Code requirements, including the California Energy Code and the mandatory requirements of the CALGreen Code. Future development would also be required to undergo environmental review that would evaluate the potential for climate change impacts to occur. It is likely that in cases where climate change impacts are identified, appropriate and feasible mitigation would be applied to reduce GHG emissions including on- and off-site GHG reduction measures (e.g., low-flow water appliance, energy-efficient home appliances, landscaping limits), investments in local or regional programs to reduce GHGs (e.g., electrified school bus programs, home refurbishment rebate programs), and the purchase of carbon offsets through programs verified by third party such as the Climate Action Reserve.

Table 3.8-11 provides a comparison of estimated emissions for three primary sources for the years 2005, 2019, 2030, 2045 and 2050. While 1990 data for the SCAG region specifically is not available, 15 percent below 2005 may be used as an estimate of 1990. Therefore estimated 1990 emissions for the three primary sources of emissions in the SCAG region is 15 percent less than 130.71 MMT or 111.10 MMT. 2050 total emissions from these sources are estimated at 92.93 MMT or about 16 percent less than estimated 1990 emissions.

SUMMARY

In summary, GHG emissions are anticipated to decrease compared to existing conditions. However, based on the analysis above they are not anticipated to be reduced sufficiently to meet the GHG emissions reduction targets established for California (see Regulatory Framework), and therefore the GHG emissions resulting directly and indirectly from the Plan may result in significant and unavoidable impacts. As noted in the discussion above, the analyses of GHG emissions sources presented herein, even for transportation, do not fully take into account changes to fuels and clean technologies that are expected to substantially reduce emissions over time as compared to what is presented here. Nonetheless, emissions are still forecasted (based on current modeling with factors) to be higher than necessary to meet the statewide GHG reduction targets (other than SB 375 where the SCAG region would meet the targets).

GHG impacts are generally cumulative in nature and have broader (i.e., statewide, national, and global) implications. At the state level, CARB has indicated in its latest 2022 Progress Report that California, as a whole, is still not reducing enough GHG emissions from personal vehicle travel pursuant to SB 375. But CARB recognizes that MPOs do not have land use authority to implement additional VMT reductions. Indeed, SCAG has no control or authority over the other key sectors whose GHG emission reductions are needed to meet the State's climate goals. At the regional level, it is expected that this Plan would meet SCAG's current per capita GHG emission reductions targets for passenger vehicles and light-duty trucks for 2020 and 2035 as set forth by CARB in 2018. By meeting its statutorily required SB 375 targets for the SCAG region, the Plan has contributed its regional share towards reducing GHG emissions set forth in AB 32 and SB 32. However, additional and accelerated per capita

light-duty vehicles VMT reductions at the regional level are still needed. As one of the largest four MPOs in the state, SCAG has a unique perspective to offer in the next round of SB 375 GHG reduction targets setting and will lead by example in working together with CARB and all other involved agencies in setting ambitious and yet appropriate, achievable, and equitable targets for SCAG's portion of transportation planning's contribution toward state climate goals. Nonetheless, there could be a possibility of conflicts with AB 32 and/or SB 32 at this time. Therefore, GHG impacts, with the exception of the Plan's compliance with SB 375, are conservatively considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See **SMM-AQ-1**.

SMM-GHG-1 SCAG, in partnership with local air districts, shall continue to work with local jurisdictions to adopt qualified GHG reduction plans (e.g., climate action plans [CAPs]), develop GHG-reducing planning policies, and support local implementation of climate initiatives.

SMM-GHG-2 SCAG shall measure and track sustainability progress in the region and foster collaboration through the sharing of best practices across the 191 cities and six counties in the SCAG region (including across SB 535 Disadvantaged Communities) and identifies opportunities for improving sustainability practices.

PROJECT-LEVEL MITIGATION MEASURES

PMM-GHG-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to greenhouse gas emissions. Such measures may include the following or other comparable measures identified by the lead agency:

- a) Integrate green building measures consistent with CALGreen (California Building Code Title 24), local building codes and other applicable laws, into project design including:
 - i) Use energy efficient materials in building design, construction, rehabilitation, and retrofit.
 - ii) Install energy-efficient lighting, heating, and cooling systems (cogeneration); water heaters; appliances; equipment; and control systems.
 - iii) Reduce lighting, heating, and cooling needs by taking advantage of light-colored roofs, trees for shade, and sunlight.
 - iv) Incorporate passive environmental control systems that account for the characteristics of the natural environment.
 - v) Use high-efficiency lighting and cooking devices.
 - vi) Incorporate passive solar design.
 - vii) Use high-reflectivity building materials and multiple glazing.
 - viii) Use no gas-powered landscape maintenance equipment.
 - ix) Install electric vehicle charging stations.

- x) Reduce wood burning stoves or fireplaces.
 - xi) Provide bike lanes accessibility and parking at residential developments.
 - xii) Encourage projects to reduce natural gas infrastructure in buildings and/or reduce the use of natural gas appliances, with exceptions for limited uses.
- b) Reduce emissions resulting from projects through implementation of project features, project design, or other measures, such as those described in Appendix F of the State CEQA Guidelines.
- c) Include off-site measures to mitigate a project's emissions.
- d) Measures that consider incorporation of Best Available Control Technology (BACT) during design, construction, and operation of projects to minimize GHG emissions, including but not limited to:
- i) Use energy and fuel-efficient vehicles and equipment;
 - ii) Deployment of zero- and/or near zero emission technologies;
 - iii) Use lighting systems that are energy efficient, such as LED technology;
 - iv) Use the minimum feasible amount of GHG-emitting construction materials;
 - v) Use cement blended with the maximum feasible amount of flash or other materials that reduce GHG emissions from cement production;
 - vi) Incorporate design measures to reduce GHG emissions from solid waste management through encouraging solid waste recycling and reuse;
 - vii) Incorporate design measures to reduce energy consumption and increase use of renewable energy;
 - viii) Incorporate design measures to reduce water consumption;
 - ix) Use lighter-colored pavement where feasible;
 - x) Recycle construction debris to maximum extent feasible;
 - xi) Plant shade trees in or near construction projects where feasible; and
 - xii) Solicit bids that include concepts listed above.
- e) Measures that encourage transit use, carpooling, bike-share and car-share programs, active transportation, and parking strategies, including, but not limited to the following:
- i) Promote transit-active transportation coordinated strategies;
 - ii) Increase bicycle carrying capacity on transit and rail vehicles;
 - iii) Improve or increase access to transit;
 - iv) Increase access to common goods and services, such as groceries, schools, and day care;
 - v) Incorporate affordable housing into the project;
 - vi) Incorporate the neighborhood electric vehicle network;
 - vii) Orient the project toward transit, bicycle, and pedestrian facilities;

- viii) Improve pedestrian or bicycle networks, or transit service;
- ix) Provide traffic calming measures;
- x) Provide bicycle parking;
- xi) Limit or eliminate park supply;
- xii) Unbundle parking costs;
- xiii) Provide parking cash-out programs;
- xiv) Implement or provide access to commute reduction program;
- f) Incorporate bicycle and pedestrian facilities into project designs, maintaining these facilities, and providing amenities incentivizing their use; and planning for and building local bicycle projects that connect with the regional network;
- g) Improving transit access to rail and bus routes by incentives for construction of transit facilities within developments, and/or providing dedicated shuttle service to transit stations; and
- h) Adopting employer trip reduction measures to reduce employee trips such as vanpool and carpool programs, providing end-of-trip facilities, and telecommuting programs including but not limited to measures that:
 - i) Provide car-sharing, bike sharing, and ride-sharing programs;
 - ii) Provide transit passes;
 - iii) Shift single occupancy vehicle trips to carpooling or vanpooling, for example providing ride-matching services;
 - iv) Provide incentives or subsidies that increase that use of modes other than single-occupancy vehicle;
 - v) Provide on-site amenities at places of work, such as priority parking for carpools and vanpools, secure bike parking, and showers and locker rooms;
 - vi) Provide employee transportation coordinators at employment sites;
 - vii) Provide a guaranteed ride home service to users of non-auto modes.
- i) Designate a percentage of parking spaces for ride-sharing vehicles or high-occupancy vehicles, and provide adequate passenger loading and unloading for those vehicles;
- j) Land use siting and design measures that reduce GHG emissions, including:
 - i) Developing on infill and brownfields sites;
 - ii) Building compact and mixed-use developments near transit;
 - iii) Retaining on-site mature trees and vegetation, and planting new canopy trees;
 - iv) Measures that increase vehicle efficiency, encourage use of zero and low emissions vehicles, or reduce the carbon content of fuels, including constructing or encouraging construction of electric vehicle charging stations or neighborhood electric vehicle networks, or charging for electric bicycles; and

- v) Measures to reduce GHG emissions from solid waste management through encouraging solid waste recycling and reuse.
- vi) Establish methane recovery in Landfills and Wastewater Treatment Plants, where applicable.
- k) Consult the SCAG Environmental Justice Toolbox available on SCAG's [Environmental Justice webpage](#) for potential measures to address impacts to low-income and/or communities of color.
- l) Require at least five percent of all new vehicle parking spaces include electric vehicle charging stations, or at a minimum, install the appropriate infrastructure to facilitate sufficient electric charging for passenger vehicles and trucks to plug-in. Encourage electric vehicle capable (branch circuit and raceway) or ready (charging outlet) spaces to accommodate future growth in electric vehicles.
- M) Encourage telecommuting and alternative work schedules, such as:
 - i) Staggered starting times
 - ii) Flexible schedules
 - iii) Compressed work weeks
- n) Implement commute trip reduction marketing, such as:
 - i) New employee orientation of trip reduction and alternative mode options
 - ii) Event promotions
 - iii) Publications
- o) Implement preferential parking permit program
- p) Implement school pool and bus programs
- q) Price workplace parking, such as:
 - i) Explicitly charging for parking for its employees
 - ii) Implementing above market rate pricing
 - iii) Validating parking only for invited guests
 - iv) Not providing employee parking and transportation allowances
 - v) Educating employees about available alternatives

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts but given the regional scale of the analysis in this 2024 PEIR and the uncertainty of GHG emissions reductions at the project-level, it is not possible or feasible to determine if the GHG emissions reductions would meet statewide standards. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation

measures will reduce the impacts related to GHG emissions including potential conflicts with applicable plans, policies, and regulations, due to the regional nature of the analysis, unknown site conditions and project specific-details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of a regional growth forecast and land use pattern, policies and strategies, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to GHG emissions with the exception of Plan's consistency with SB 375,¹⁸ these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

¹⁸ The Plan meets SB 375 targets for reducing GHG emissions. This demonstrates that the Plan is able to do its share to reducing GHG emissions from passenger vehicles and light-duty trucks. Thus, the Plan's contribution to GHG emissions from passenger vehicles and light-duty trucks for purposes of SB 375 would not be cumulatively considerable. However, because of the identified "gap" in meeting the statewide GHG reduction targets from the transportation sector, emissions from light duty vehicles are considered significant and would add to cumulative impacts.

3.8.4 SOURCES

- Adaptation Clearinghouse. 2019. State of California Executive Order N-19-19.
<https://www.adaptationclearinghouse.org/resources/state-of-california-executive-order-n-19-19.html>.
Accessed October 27, 2023.
- Assembly Bill No. 32, Chapter 488. September 27, 2006.
- Assembly Bill No. 197, Chapter 250: State Air Resources Board: greenhouse gases: regulations. September 8, 2016.
- Assembly Bill No. 398, Chapter 135: California Global Warming Solutions Act of 2006: market-based compliance mechanisms: fire prevention fees: sales and use tax manufacturing exemption. July 25, 2017.
- Assembly Bill No. 811, Chapter 159: Contractual assessments: energy efficiency improvements. July 21, 2008.
- Assembly Bill No. 970, Chapter 329. September 7, 2000.
- Assembly Bill No. 1493, Chapter 200. July 22, 2002.
- California Air Resources Board (CARB). 2007a. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. https://www.dtsc-sf.com/files/lib_ceqa/ref_draft_peir/Chap4_6-GrnhouseGas/68335_CARB_2007_-_Expanded_List_of_Early_Action_Measures_to_Reduce_GHG.pdf.
- CARB. 2007b. Notice of Public Availability of Modified Text: Public Hearing to Consider Adoption of a Regulation for the Mandatory Reporting of Greenhouse Gas Emissions.
<https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2007/ghg2007/15daynotice.pdf>.
- CARB. 2007c. California Greenhouse Gas Inventory (millions of metric tonnes of CO₂ equivalent) — By Sector and Activity, https://ww2.arb.ca.gov/sites/default/files/classic/cc/ghg_inventory_sector_sum_90-04_AR4.pdf.
- CARB. 2008. *Climate Change Scoping Plan: A Framework for Change – Pursuant to AB 32 The California Global Warming Solutions Act of 2006*. Prepared by CARB for the State of California. December 2008.
- CARB. 2013a. Article 5: California CAP on Greenhouse Gas Emissions and Market-based Compliance Mechanisms. <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2013/capandtrade13/ctreg.pdf>.
Accessed October 27, 2023.
- CARB. 2013b. Initial AB 32 Climate Change Scoping Plan Document.
<https://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>. Accessed October 27, 2023.
- CARB. 2014. *First Update to the Climate Change Scoping Plan – Building on the Framework. Pursuant to AB 32: The California Global Warming Solutions Act of 2006*.
https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.
- CARB. 2015. FAQ about EO B-30-15: 2030 Carbon Target and Adaptation.
http://www.arb.ca.gov/newsrel/2030_carbon_target_adaptation_faq.pdf. Accessed July 16, 2023.
- CARB. 2017a. *California 1990 Greenhouse Gas Emissions Level and 2020 Limit*. November 16, 2007.
https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/pubs/reports/staff_report_1990_level.pdf.
- CARB. 2017b. *California's 2017 Climate Change Scoping Plan – The strategy for achieving California's 2030 greenhouse gas target*. November 2017.

- CARB. 2017c. Final Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets. [https://ww3.arb.ca.gov/cc/sb375/final_staff_proposal_sb375_target_update_october_2017.pdf? ga=2.217174102.1993336916.1570127197-1229197864.1566229390](https://ww3.arb.ca.gov/cc/sb375/final_staff_proposal_sb375_target_update_october_2017.pdf?ga=2.217174102.1993336916.1570127197-1229197864.1566229390). Accessed July 24, 2023.
- CARB. 2017d. News Release: CARB finds vehicle standards are achievable and cost-effective. Release No. 17-19. ww2.arb.ca.gov/news/carb-finds-vehicle-standards-are-achievable-and-cost-effective. March 24, 2017. Accessed July 21, 2023.
- CARB. 2018a. *2018 Progress Report: California's Sustainable Communities and Climate Protection Act*. November 2018.
- CARB. 2018b. News Release: CARB amends Low Carbon Fuel Standard for wider impact. September 27, 2018. Release No. 18-52. <https://ww2.arb.ca.gov/index.php/news/carb-amends-low-carbon-fuel-standard-wider-impact>. Accessed July 21, 2023.
- CARB. 2018c. *Updated Final Staff Report Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*. February 2018. https://ww2.arb.ca.gov/sites/default/files/2020-06/SB375_Updated_Final_Target_Staff_Report_2018.pdf.
- CARB. 2021. *2020 Mobile Source Strategy*. October 28, 2021. https://ww2.arb.ca.gov/sites/default/files/2021-12/2020_Mobile_Source_Strategy.pdf.
- CARB. 2022a *Final 2022 Scoping Plan for Achieving Carbon Neutrality*. December 2022
- CARB. 2022b. California Greenhouse Gas Inventory for 2000-2020 — by Category as Defined in the 2008 Scoping Plan. Last updated October 26, 2022. https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/ghg_inventory_scopingplan_sum_2000-20.pdf.
- CARB. 2022c. California Air Resources Board 2022 Scoping Plan- Appendix D: Local Actions. November 2022. <https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp-appendix-d-local-actions.pdf>.
- CARB. 2022d. The California Low-Emission Vehicle Regulations. Effective November 30, 2022. https://ww2.arb.ca.gov/sites/default/files/2023-02/cleancomplete_lev_ghg_regs_11_2022.pdf.
- CARB. 2022e. *2022 Progress Report: California's Sustainable Communities and Climate Protection Act*. June 2023.
- CARB. 2022f. Regional and Statewide Transportation, Housing, and Land Use Performance Metrics under SB 150. Appendix A to *2022 Progress Report: California's Sustainable Communities and Climate Protection Act*.
- CARB. 2023a. Advanced Clean Cars Program. <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program/about>. Accessed July 28, 2023.
- CARB. 2023b. California Phase 1 Greenhouse Gas Standards. <https://ww2.arb.ca.gov/our-work/programs/greenhouse-gas-standards-medium-and-heavy-duty-engines-and-vehicles/phase1>. Accessed July 18, 2023.
- CARB. 2023c. California Phase 2 Greenhouse Gas Standards. <https://ww2.arb.ca.gov/our-work/programs/greenhouse-gas-standards-medium-and-heavy-duty-engines-and-vehicles/phase2>. Accessed July 21, 2023.
- CARB. 2023d. CARB Updated Targets March 2018. <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets>.
- CARB. 2023e. First Public Workshop: California's Approach under U.S. EPA's Climate Pollution Reduction Grant Program. August 3, 2023. https://ww2.arb.ca.gov/sites/default/files/2023-08/CPRG%20Deck_Aug%203%202023.pdf.

- CARB. 2023f. U.S. EPA's Climate Pollution Reduction Grants Program. <https://ww2.arb.ca.gov/our-work/programs/us-epas-climate-pollution-reduction-grants-program/about>. Accessed September 1, 2023.
- CARB. Undated[a]. Wildfire Emissions Estimates for 2021. <https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/Wildfire%20Emission%20Estimates%202000-2021.pdf>. Accessed July 25, 2023.
- CARB. Undated[b]. GHG Global Warming Potentials. <https://ww2.arb.ca.gov/ghg-gwps>.
- CARB, and SCAG. 2022. Email correspondence on November 18, 2022, and December 7, 2022, between CARB staff (Lana Wong, Nesamani Kalandiyur) and SCAG Staff (Sarah Dominguez).
- California Building Standards Commission. 2010. *2010 California Green Building Standards Code*.
- California Building Standards Commission. 2022. CALGreen. <https://www.dgs.ca.gov/DSA/Resources/Page-Content/Resources-List-Folder/Overview-Title-24-Building-Standards-Code>. Accessed October 19, 2023.
- California Public Resources Code. Division 20: California Coastal Act.
- California Department of Forestry and Fire Protection (CAL FIRE). 2019a. *2019 Incident Archive*. <https://www.fire.ca.gov/incidents/2019>. Accessed July 24, 2023.
- CAL FIRE. 2019b. *Maria Fire*. <https://www.fire.ca.gov/incidents/2019/10/31/maria-fire>. Accessed July 24, 2023.
- California Department of Public Health. 2012. *Climate Action for Health: Integrating Public Health into Climate Action Planning*. February 2012.
- California Department of Transportation (Caltrans). 2011. *Guidance on Incorporating Sea Level Rise: For use in the planning and development of Project Initiation Documents*. Prepared by the Caltrans Climate Change Workgroup, and the HQ Divisions of Transportation Planning, Design, and Environmental Analysis. May 16, 2011.
- Caltrans. 2015. *Strategic Management Plan 2015–2020*. March 2015. <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/caltrans-strategic-mgmt-plan-033015-a11y.pdf>. Accessed July 21, 2023.
- Caltrans. 2021. *Caltrans 2020–2024 Strategic Plan*. <https://dot.ca.gov/-/media/dot-media/programs/risk-strategic-management/documents/sp-2020-16p-web-a11y.pdf>.
- California Department of Water Resources (DWR). 2023. California's Snowpack is Now One of the Largest Ever, Bringing Drought Relief, Flooding Concerns. <https://water.ca.gov/News/News-Releases/2023/April-23/Snow-Survey-April-2023>. Accessed August 9, 2023.
- CEC. 2019. *2019 Building Energy Efficiency Standards*. <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency>. Accessed July 21, 2023.
- CEC. 2022. *2022 Building Energy Efficiency Standards*. <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency>. Accessed July 21, 2023.
- California Environmental Protection Agency (CalEPA). 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature. March 2006.
- CalEPA. 2023. Climate Action Team. <https://calepa.ca.gov/climate-action/>. Accessed on July 19, 2023.
- California Natural Resources Agency (CNRA). 2009a. *2009 California Climate Adaption Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008*.

- CNRA. 2009b. *Final Statement of Reasons for the Regulatory Action Amendments to the State CEQA Guidelines*. https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/Final_Statement_of_Reasons.pdf. Accessed September 1, 2023.
- CNRA. 2018a. *California's Fourth Climate Change Assessment: Statewide Summary Report*. SUM-CCCA4-2018-013.
- CNRA. 2018b. *Safeguarding California Plan: California's Climate Adaption Policy*. January 2018.
- California State Library. 2007. *Executive Order S-01-07*. <https://www.library.ca.gov/wp-content/uploads/GovernmentPublications/executive-order-proclamation/5107-5108.pdf>.
- California State Library. 2008. *Executive Order S-13-08*. <https://www.library.ca.gov/wp-content/uploads/GovernmentPublications/executive-order-proclamation/38-S-13-08.pdf>.
- California State Library. 2009. *Executive Order S-21-09*. <https://www.library.ca.gov/government-publications/executive-orders/?SelectedEONumber=S-21-09>. Accessed July 18, 2023.
- California Strategic Growth Council. 2023. *Affordable Housing and Sustainable Communities Program: Round 7 Program Guidelines*. https://sgc.ca.gov/programs/ahsc/docs/20221212-AHSC_Round7_Guidelines.pdf, accessed July 21, 2023.
- City of Los Angeles. 2019. *LA's Green New Deal – Sustainable City pLAN*.
- City of Riverside. Undated. *Green Riverside Action Plan*. https://www.ca-ilg.org/sites/main/files/file-attachments/riverside-green_action_plan.pdf?1451431582. Accessed August 18, 2023.
- Climate Action Team. 2010. *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. December 2012.
- Climate Resolve. 2015. *Approved: LA County's Community Climate Action Plan*. <http://climateresolve.org/countyclimateactionplan/>. Accessed July 21, 2023.
- Climatewatch. 2023. *Historical GHG Emissions*. <https://www.climatewatchdata.org/ghg-emissions>. Accessed July 21, 2023.
- Columbia Broadcasting System News (CBS News). 2023. *Canadian wildfire maps show where fires continue to burn across Quebec, Ontario and other provinces*. <https://www.cbsnews.com/news/map-canadian-wildfires-2023-where-are-the-fires-ontario-quebec/>. Accessed August 9, 2023.
- County of Los Angeles. 2023. *LA County Chief Sustainability Office*. <https://www.lacounty.gov/sustainability/>. Accessed July 24, 2023.
- County of Los Angeles, Department of Regional Planning. 2023. *Revised Draft 2045 Climate Action Plan*. March 2023.
- County of Ventura. 2023a. *Climate Action and Adaptation*. <https://sustain.ventura.org/climate-action-adaptation/>. Accessed July 24, 2023.
- County of Ventura. 2023b. *General Plan*. <https://egeneralplan.vcrma.org/>. Accessed July 24, 2023.
- County of Ventura. 2023c. *Working & Living Sustainably*. <https://cobapps.countyofventura.org/sustain/>. Accessed July 24, 2023.
- Easterling, D.R., Kunkel, K.E., Wehner, M.F., and Sun, L. 2016. *Detection and Attribution of Climate Extremes in the Observed Record*. March.
- Energy + Environmental Economics. 2020. *Achieving Carbon Neutrality in California: PATHWAYS Scenarios Developed for the California Air Resources Board*. October 2020.

- Energy Policy Act of 2005. <https://www.energy.gov/sites/prod/files/edg/media/HR6PP%281%29.pdf>. Accessed July 21, 2023.
- Federal Register. 2021. Rules and Regulations, Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards. Vol. 86, No. 248. December 30, 2021.
- Federal Register. 2022. California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of a Previous Withdrawal of a Waiver of Preemption; Notice of Decision. 87 Fed. Reg. 14,332. Mar. 14, 2022.
- Global Covenant of Mayors for Climate & Energy (GcoM). 2023a. *About Us, Who We Are*. <https://www.globalcovenantofmayors.org/who-we-are/>. Accessed July 18, 2023.
- GcoM. 2023b. *USA*. <https://www.globalcovenantofmayors.org/region/usa/>. Accessed July 18, 2023.
- Governor's Interagency Working Group on Zero-Emission Vehicles. 2013. *ZEV Action Plan – A roadmap toward 1.5 million zero-emission vehicles on California roadways by 2025*. February 2013.
- Governor's Interagency Working Group on Zero-Emission Vehicles. 2016. *ZEV Action Plan – An updated roadmap toward 1.5 million zero-emission vehicles on California roadways by 2025*. October 2016.
- Governor's Interagency Working Group on Zero-Emission Vehicles. 2018. *ZEV Action Plan – Priorities Update*. September 2018.
- Governor's Office of Business and Economic Development. 2023. Zero-Emission Vehicle Market Development Strategy. <https://business.ca.gov/industries/zero-emission-vehicles/zev-strategy/>. Accessed August 1, 2023.
- OPR. 2016. Announcement: The DRAFT California Jurisdictions Addressing Climate Change summary document now available for public review. <https://web.archive.org/web/20220702050325/http://www.opr.ca.gov/news/2016/02-11.html>. Accessed July 24, 2023.
- Gurney, K.R., R. Patarasuk, J. Liang, Y. Song, D. O'Keeffe, P. Rao, J.R. Whetstone, R.M. Duren, A. Eldering, and C. Miller. "The Hesta fossil fuel CO₂ emissions data product for the Los Angeles megacity (Hestia-LA)." *Earth System Science Data* 11(3):1309–1335. August 2019.
- H.R. 776 – Energy Policy Act of 1992. <https://www.congress.gov/bill/102nd-congress/house-bill/776/text/enr>. Accessed July 21, 2023.
- Hagos, S., Leung, L.R., Yoon, J.H., Lu, J., and Gao, Y., 2016. A Projection of Changes in Landfalling Atmospheric River Frequency and Extreme Precipitation over Western North America from the Large Ensemble CESM Simulations. January.
- Imperial County Transportation Commission (ICTC). 2021. Regional Climate Action Plan. Prepared by ICTC for SCAG. June 2021.
- Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Pachauri, R.K and Reisinger, A. (eds.). IPCC, Geneva, Switzerland.
- IPCC. 2013. Summary for Policymakers. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

- IPCC. 2014. *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. R.K. Pachauri and L.A. Meyer (eds.). IPCC, Geneva.
- IPCC. 2018. Summary for Policymakers. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.). Cambridge University Press, Cambridge, UK and New York, NY, USA.
- IPCC. 2023. *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. H. Lee and J. Romero (eds.). IPCC, Geneva, Switzerland.
- Kossin, J.P., K.A. Emanuel, and S.J. Camargo. 2016. "Past and Projected Changes in Western North Pacific Tropical Cyclone Exposure." *Journal of Climate* 29(16):5725–5739.
- National Academies of Sciences, Engineering, and Medicine. 2016. *Attribution of Extreme Weather Events in the Context of Climate Change*.
- National Highway Traffic Safety Administration (NHTSA). Undated. Corporate Average Fuel Economy standards.
- Office of Environmental Health Hazard Assessment (OEHHA). 2018 Indicators of Climate Change in California. August 30, 2018. <https://oehha.ca.gov/climate-change/document/indicators-climate-change-california>. Accessed July 21, 2023.
- Office of Governor Edmund G. Brown Jr. 2015. Executive Order B-32-15. <https://www.ca.gov/archive/gov39/2015/07/17/news19046/>. Accessed July 21, 2023.
- Office of the Governor, Arnold Schwarzenegger. 2005. Executive Order S-3-05.
- Office of the Governor, Arnold Schwarzenegger. 2008. Executive Order S-14-08. https://www.drecp.org/documents/docs/2008-11-17_Exec_Order_S-14-08.pdf.
- Orange County Register. 2023. https://www.ocregister.com/2023/09/01/orange-county-leadership-gathers-input-in-how-to-take-action-against-climate-change/?utm_source=SCAG+Community&utm_campaign=bcbdb0f225-MClips_2023_08_31_COPY_01&utm_medium=email&utm_term=0_-8407f4531e-%5BLIST_EMAIL_ID%5D. Accessed September 1, 2023.
- Orange County Transportation Authority/Orange County Council of Governments (OCTA/COG). 2011. *Orange County Sustainable Communities Strategy (SCS)*. June 14, 2011.
- OurCounty. 2019. *Los Angeles Countywide Sustainability Plan*. August 2019.
- Our World in Data. 2023. Cumulative CO2 emissions by world region. <https://ourworldindata.org/grapher/cumulative-co2-emissions-region?stackMode=absolute>. Accessed July 16, 2023.
- Payne, A, and G. Magnusdottir. 2015. An Evaluation of Atmospheric Rivers over the North Pacific in CMIP5 and their response to warming under RCP 8.5. November 2015.
- Public Law 101-606, 104 Stat. 3096-3104. Global Change Research Act. November 16, 1990.
- Riverside County Planning Department. 2019. *Climate Action Plan Update*. November 2019.

- San Bernardino Associated Governments. 2014. *San Bernardino County Regional Greenhouse Gas Reduction Plan*. Final. March 2014.
- San Bernardino Associated Governments. 2021. *San Bernardino County Regional Greenhouse Gas Reduction Plan*. Final. March 2021.
- Scripps Institution of Oceanography. 2017. California's Climate Future Suggests More Volatility and a Key Role for Atmospheric Rivers. September. <https://scripps.ucsd.edu/news/californias-climate-future-suggests-more-volatility-and-key-role-atmospheric-rivers>. Accessed July 21, 2023.
- Senate Bill No. 1, Chapter 132: Electricity: solar energy: net metering. August 21, 2006.
- Senate Bill No. 2, Chapter 1. April 12, 2011.
- Senate Bill No. 32, Chapter 249: California Global Warming Solutions Act of 2006: emissions limit. September 8, 2016.
- Senate Bill No. 97, Chapter 185: CEQA: greenhouse gas emissions. August 24, 2007.
- Senate Bill No. 100, Chapter 312: California Renewables Portfolio Standard Program: emissions of greenhouse gases. September 10, 2018.
- Senate Bill No. 107, Chapter 464. September 26, 2006.
- Senate Bil No. 350, Chapter 547: Clean Energy and Pollution Reduction Act of 2015. October 7, 2015.
- Senate Bill No. 375, Chapter 728: Transportation planning: travel demand models: sustainable communities strategy: environmental review. September 30, 2008.
- Senate Bill No. 743, Chapter 386: Environmental quality: transit oriented infill projects, judicial review streamlining for environmental leadership development projects, and entertainment and sports center in the City of Sacramento. September 27, 2013.
- Senate Bill No. 1078, Chapter 516: Renewable energy: California Renewables Portfolio Standard Program. September 12, 2002.
- Senate Bill No. 1383, Chapter 395: Short-lived climate pollutants: methane emissions: dairy and livestock: organic waste: landfills. September 19, 2016.
- Sobel, A.H., Camargo, S.J., Hall, T.M., Lee, C-Y., Tippet, M.K., and Wing, A.A., 2016. Human Influence on Tropical Cyclone Intensity. *Science* 453(6296):242–246.
- South Coast Air Quality Management District (SCAQMD). 2008a. Board Meeting, December 5, 2008, Agenda No. 31. Proposal: Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans. [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2). Accessed July 21, 2023.
- SCAQMD. 2008b. Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold. October 2008. [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgattachmente.pdf](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgattachmente.pdf).
- SCAQMD. 2016. *Draft Aircraft Emissions Inventory for South Coast Air Quality Management District*. August 2016.
- SCAQMD. 2017a. *Final 2016 Air Quality Management Plan*. March 2017.
- SCAQMD. 2017b. *Final Environmental Impact Report 2016 Air Quality Management Plan*. <http://www.aqmd.gov/docs/default-source/ceqa/documents/aqmd-projects/2016/2016aqmpfpeir.pdf?sfvrsn=10>. Accessed July 21, 2023.

- SCAQMD. 2019b. Greenhouse Gases (GHG) CEQA Significance Thresholds. <http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/ghg-significance-thresholds/page/2>. Accessed July 21, 2023.
- SCAQMD. 2022. *2022 Air Quality Management Plan*. Final. Adopted December 2, 2022.
- SCAQMD. 2023. Climate Change. <http://www.aqmd.gov/nav/about/initiatives/climate-change>. Accessed July 22, 2023.
- Southern California Association of Governments (SCAG). 2012. *Regional Greenhouse Gas Inventory and Reference Case Projections, 1990-2035*. Final. May 30, 2012. Prepared by the Center for Climate Strategies.
- SCAG. 2015b. The Greenhouse Gas Reduction Fund. <https://scag.ca.gov/greenhouse-gas-reduction-fund>. Accessed July 21, 2023.
- SCAG. 2023a. Sustainability Award Recipients. <https://scag.ca.gov/past-sustainability-program-awards-recipients>. Accessed July 21, 2023.
- SCAG. 2023b. *Climate Equity Compendium*. October 2023.
- State of California. 2010. State of California Sea-Level Rise Interim Guidance Document. October 2010. http://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20110311/12.SLR_Resolution/SLR-Guidance-Document.pdf.
- State of California. 2012. Executive Order B-16-2012. <https://www.ca.gov/archive/gov39/2012/03/23/news17472/index.html>. Accessed on July 19, 2023.
- The Legislative Analyst's Office. 2023. The 2023-24 Budget Cap-and-Trade Expenditure Plan and Greenhouse Gas Reduction Fund Revenue Estimates. <https://lao.ca.gov/Publications/Report/4730>. Accessed July 21, 2023.
- The White House, President Barack Obama. 2010. Presidential Memorandum Regarding Fuel Efficiency Standards. <https://obamawhitehouse.archives.gov/the-press-office/presidential-memorandum-regarding-fuel-efficiency-standards>. Accessed July 21, 2023.
- The White House. 2017a. Presidential Executive Order on Promoting Energy Independence and Economic Growth. <https://www.whitehouse.gov/presidential-actions/presidential-executive-order-promoting-energy-independence-economic-growth/>. Accessed July 21, 2023.
- The White House. 2017b. Statement by President Trump on the Paris Climate Accord. <https://trumpwhitehouse.archives.gov/briefings-statements/statement-president-trump-paris-climate-accord/>. Accessed July 21, 2023.
- The White House. 2021. *Paris Climate Agreement*. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/20/paris-climate-agreement/>. Accessed July 18, 2023.
- United Nations. 2015. Paris Agreement. http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf.
- United Nations News. 2023. It's official: July 2023 was the warmest on record. <https://news.un.org/en/story/2023/08/1139527>. Accessed August 9, 2023.
- USDA. 2020. 2019 Aerial Survey Results: California. February. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd700809.pdf.
- US Department of Interior (DOI). 2018. Press Release: New Analysis Shows 2018 California Wildfires Emitted as Much Carbon Dioxide as an Entire Year's Worth of Electricity. November 30, 2018. Last edited 9/29/2021. <https://www.doi.gov/pressreleases/new-analysis-shows-2018-california-wildfires-emitted-much-carbon-dioxide-entire-years>. Accessed July 16, 2023.

- U.S. Department of Transportation (DOT). 2009. Corporate Average Fuel Economy (CAFÉ) Standards. <https://www.transportation.gov/mission/sustainability/corporate-average-fuel-economy-cafe-standards>. Accessed July 21, 2023.
- DOT. 2012. *The Federal Highway Administration's Climate Change & Extreme Weather Vulnerability Assessment Framework*. December 2012.
- U.S. Environmental Protection Agency (USEPA). 2016. Inventory of U.S. Greenhouse Gas Emissions and Sinks. April. https://www.epa.gov/sites/production/files/2018-01/documents/2018_complete_report.pdf.
- USEPA. 2016. *What Climate Change Means for California*. EPA 430-F-16-007. August 2016. <https://www.epa.gov/sites/production/files/2016-09/documents/climate-change-ca.pdf>.
- USEPA. 2017. Glossary of Climate Change Terms. January 19, 2017. <https://19january2017snapshot.epa.gov/climatechange/glossary-climate-change-terms.html>. Accessed July 21, 2023.
- USEPA. 2019a. EPA Finalizes Affordable Clean Energy Rule, Ensuring Reliable, Diversified Energy Resources while Protecting the Environment. <https://www.epa.gov/newsreleases/epa-finalizes-affordable-clean-energy-rule-ensuring-reliable-diversified-energy>. Accessed July 21, 2023.
- USEPA. 2020. Final Rule for Model Year 2021 – 2026 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, published April 30, 2020.
- USEPA. 2021a. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019, 2021 Executive Summary*. April. <https://www.epa.gov/sites/default/files/2021-04/documents/us-ghg-inventory-2021-chapter-executive-summary.pdf>.
- USEPA. 2021b. *Revised 2023 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions Standards: Regulatory Update*. EPA-420-F-21-077. December 2021.
- USEPA. 2023a. Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act. Updated 2023. <https://www.epa.gov/ghgemissions/endangerment-and-cause-or-contribute-findings-greenhouse-gases-under-clean-air-act>. Accessed July 26, 2023.
- USEPA. 2023b. *Final Rule for Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles - Phase 2*. Last updated July 19, 2023. <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-phase-2-greenhouse-gas-emissions-standards#:~:text=Rule%20Summary,-The%20U.S.%20Environmental&text=The%20final%20standards%20are%20expected,vehicles%20sold%20under%20the%20program>. Accessed October 27, 2023.
- USEPA. 2023c. Greenhouse Gas Inventory Data Explorer. <https://cfpub.epa.gov/ghgdata/inventoryexplorer/#>. Accessed August 10, 2023.
- USEPA. 2023d. *Greenhouse Gas Reporting Program (GHGRP)*. Last updated APRIL 25, 2023. <https://www.epa.gov/ghgreporting/additional-information-2009-proposed-rule>. Accessed October 28, 2023.
- USEPA. 2023e. Midterm Evaluation of Light-Duty Vehicle Greenhouse Gas Emissions Standards for Model Years 2022-2025. Last updated January 4, 2023. <https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas>. Accessed October 27, 2023.
- USEPA. 2023f. Carbon Pollution Standards for New, Modified and Reconstructed Power Plants: Regulatory Actions. Undated. <https://archive.epa.gov/epa/cleanpowerplan/carbon-pollution-standards-new-modified-and-reconstructed-power-plants-regulatory.html>. Accessed July 18, 2023.

- U.S. Forest Service (USFS). 2014. 2013-2027 National Insect and Disease Forest Risk Assessment. January. https://www.fs.fed.us/foresthealth/technology/pdfs/2012_RiskMap_Exec_summary.pdf.
- Western Riverside Council of Governments (WRCOG). 2014. *Subregional Climate Action Plan*. September 2014.
- WRCOG. 2023. Planning. <https://wrcog.us/172/Planning>. Accessed July 24, 2023.
- Williams, A. P., J. T. Abatzoglou, A. Gershunov, J. Guzman-Morales, D. A., Bishop, J. K. Balch, and D. P. Lettenmaier, 2019. Observed impacts of anthropogenic climate change on wildfire in California. *Earth's Future* 7: 892–910. <https://doi.org/10.1029/2019EF001210>. Accessed July 15, 2023.
- World Resources Institute. 2017a. *8 Charts to Understand U.S. State Greenhouse Gas Emissions*. August 10, 2017. <https://www.wri.org/insights/8-charts-understand-us-state-greenhouse-gas-emissions>. Accessed July 21, 2023.
- World Resources Institute. Undated. *GHG Historical GHG Emissions* <https://www.climatewatchdata.org/ghg-emissions>. Accessed July 21, 2023.

3.9 HAZARDS AND HAZARDOUS MATERIALS

This section of the 2024 PEIR describes existing hazards and hazardous materials in the SCAG region, sets forth the regulatory framework that affects hazards and hazardous materials, and analyzes the potential impacts from hazards and hazardous materials that could result from implementation of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible. Hazards and hazardous materials issues relative to air quality are analyzed in Section 3.3, *Air Quality*. Wildfire impacts are analyzed in more detail in Section 3.20, *Wildfire*.

3.9.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for hazards and hazardous materials follow:

- *Hazard versus risk.* Workers' health and general public health are potentially at risk whenever hazardous materials have been used or where there could be an exposure to such materials. Inherent in the setting and analyses presented in this section are the concepts of the "hazard" of these materials and the "risk" they pose to human health. Exposure to certain chemical substances may harm internal organs or systems in the human body, ranging from temporary effects to permanent disability, or death. Hazardous materials that result in adverse effects are generally considered "toxic." Other chemical materials, however, may be corrosive, or react with other substances to form other hazardous materials, but they are not considered toxic because organs or systems are not affected. Because toxic materials can result in adverse health effects, they are considered hazardous materials, but not all hazardous materials are necessarily "toxic." For purposes of the information and analyses presented in this section, the terms hazardous substances or hazardous materials are used interchangeably and include materials that are considered toxic.

The risk to human health is determined by the probability of exposure to a hazardous material and the severity of harm such exposure would pose. That is to say, the likelihood and means of exposure, in addition to the inherent toxicity of a material, are used to determine the degree of risk to human health. For example, a high probability of exposure to a low toxicity chemical would not necessarily pose an unacceptable human health or ecological risk, whereas a low probability of exposure to high toxicity chemical might. Various regulatory agencies, such as the United States Environmental Protection Agency (USEPA), California Environmental Protection Agency's (CalEPA), State Water Resources Control Board (SWRCB), CalEPA Department of Toxic Substances Control (DTSC), United States Occupational Safety and Health Administration (OSHA), and California OSHA (Cal/OSHA) are responsible for developing and/or enforcing risk-based standards to protect the public and the environment.

- *Hazardous material:* A hazardous material is any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment [Health and Safety Code Chapter 6.95, Section 25501(n)]. The term "hazardous materials" refers to both hazardous substances and hazardous wastes. Under federal and state laws (listed below and further listed in Section 3.9.2, *Regulatory Framework*), any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is

toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases).

- *Hazardous waste:* Hazardous wastes are hazardous substances that no longer have practical use, such as materials that have been spent, discarded, discharged, spilled, contaminated, or are being stored until they can be disposed of properly (California Code of Regulations [CCR] Title 22, Division 4.5, Chapter 11, Article 2, Section 66261.10). Soil that is excavated from a site containing hazardous materials is a hazardous waste if it exceeds specific criteria for ignitability, corrosivity, reactivity, and toxicity (CCR Title 22, Division 4.5, Chapter 11, Article 3, Sections 66261.20 through 66261.24), exhibiting one or more of the characteristics identified below:
 - *Toxic substances:* Toxic substances may cause short-term or long-lasting health effects, ranging from temporary effects to permanent disability, or even death. For example, such substances can cause disorientation, acute allergic reactions, asphyxiation, skin irritation, or other adverse health effects if human exposure exceeds certain levels. The level depends on the substances involved and is chemical-specific. Carcinogens (substances that can cause cancer) are a special class of toxic substances. Examples of toxic substances include benzene (a component of gasoline and a suspected carcinogen) and methylene chloride (a common laboratory solvent and a suspected carcinogen).
 - *Ignitable substances:* Ignitable substances are hazardous because of their ability to burn. Gasoline, hexane, and natural gas are examples of ignitable substances.
 - *Corrosive materials:* Corrosive materials can cause severe burns. Corrosives include strong acids and bases such as sodium hydroxide (lye) or sulfuric acid (battery acid).
 - *Reactive materials:* Reactive materials are generally classified as those that are able to react by themselves when exposed to heat, pressure, shock, friction, air or water. Reactive interactions occur when two or more compounds are combined to cause a hazardous result, such as explosions or toxic gases.

While hazardous substances are regulated by multiple agencies, as described in Section 3.9.2, *Regulatory Framework*, below, cleanup requirements of hazardous wastes are determined on a case-by-case basis according to the agency with lead jurisdiction over the project.

- *Certified Unified Program Agencies:* The Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program), codified in California Health and Safety Code Sections 25404 et seq., requires the administrative consolidation of six hazardous materials and waste programs under one agency, a Certified Unified Program Agency (CUPA). CUPAs maintain records regarding location and status of sites that use hazardous materials within their areas of jurisdiction and administer programs that regulate and enforce the transport, use, storage, manufacturing, and remediation of hazardous materials. The following programs are consolidated under the unified program:
 - Hazardous Materials Release Response Plan and Inventory (Business Plans)
 - California Accidental Release Prevention (CalARP)
 - Hazardous Waste (including Tiered Permitting)
 - Underground Storage Tanks (USTs)
 - Aboveground Storage Tanks (Spill Prevention Control and Countermeasures [SPCC] requirements)
 - Uniform Fire Code (UFC) Article 80 Hazardous Material Management Program (HMMP) and Hazardous Material Identification System (HMIS)

CUPAs implement the hazardous waste and material standard including petroleum storage, areas plans for hazardous material emergencies, CalARP Program, hazardous materials release response plans and inventories, hazardous material management plan and inventory statements, onsite waste treatment program, and underground storage tank program. The CalARP program was implemented on 1997 to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. This is accomplished by requiring businesses that handled regulated substance above a threshold to develop a risk management plan with safety information, operating procedures, and training requirements, compliance audits, and other incident investigation measures to reduce accidental release potential.

- *Contaminated Sites:* A site at which hazardous substances occur at concentrations above background levels and where assessment indicates it poses, or is likely to pose, an immediate or long-term hazard to human health or the environment. SWRCB and DTSC maintain databases of properties in California where hazardous substances were released, see section further below titled *Properties Included on a List of Hazardous Materials Sites Pursuant to Government Code Section 65962.5*.
- *Radioactive materials:* Materials that emit radiation resulting from changes in the nuclei of atoms of the element.
- *Superfund sites:* Superfund sites refer to contaminated sites that have been designated by USEPA on the National Priorities List (NPL) that are eligible for funding from the trust fund (the "Superfund") established by USEPA for cleaning up abandoned or uncontrolled hazardous waste sites pursuant to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLA was enacted in the wake of the discovery of toxic waste dumps such as Love Canal and Times Beach in the 1970s. It allows the USEPA to clean up such sites and to compel responsible parties to perform cleanups or reimburse the government for USEPA-led cleanups.
- *Voluntary cleanup program (VCP):* The VCP is a program administered by DTSC and was introduced as a streamlined program to protect human health, clean up the environment and get property back to productive use. Corporations, real estate developers, local and state agencies entering into VCP agreements are able to restore properties quickly and efficiently, rather than having their projects compete for DTSC's limited resources with other low-priority hazardous waste sites. State VCPs have played a major role in cleaning up brownfields since the 1990s. Through a nonbinding memorandum of agreement, the USEPA partnered with the state to provide resource and coordination of Superfund sites to meet Resource Conservation and Recovery Act of 1976 (RCRA) liabilities and provide corrective actions to provide "one cleanup" approaches. Selection of sites eligible for VCPs are provided under USEPA's March 2003 guidance that exclude sites from "eligible response site" when not meeting regional determinations under Section 101(41)(C)(i) of CERCLA.
- *Asbestos-containing materials (ACMs).* Asbestos is a naturally occurring fibrous material that was widely used in structures built between 1945 and 1978 for its fireproofing and insulating properties. ACMs were banned by USEPA between the early 1970s and 1991 under the authority of the federal Clean Air Act (CAA) and Toxic Substances Control Act (TSCA) as exposure to ACMs increases the risk of developing lung disease and cancers. Common ACMs include vinyl flooring and associated mastic, wallboard and associate joint compound, plaster, stucco, acoustic ceiling spray, ceiling tiles, heating system components, and roofing materials. Commercial/industrial structures are affected by asbestos regulations if damage occurs or if remodeling, renovation, or demolition activities disturb ACMs. Since many of the structures within the SCAG Region were constructed before 1978, there is a potential for the presence of ACMs to exist in a wide variety of building materials within the SCAG region.

- *Lead and lead-based paint (LBP)*. Lead is a naturally occurring metallic element. Because of its toxic properties, lead is regulated as a hazardous material. Excessive exposure to lead can result in the accumulation of lead in the blood, soft tissues, and bones. Children are particularly susceptible to potential lead-related health problems, because it is easily absorbed into developing systems and organs. Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, and in soils around buildings and structures painted with LBP. LBP was primarily used during the same time period as ACMs. Commercial/industrial structures are affected by LBP regulations if the paint is in a deteriorated condition or if remodeling, renovation, or demolition activities disturb LBP surfaces. Since many of the structures within the SCAG Region were constructed before 1978, there is potential for structures in the SCAG region to contain paints and coatings with detectable or elevated concentrations of lead.
- *Polychlorinated biphenyls (PCBs)*. PCBs are mixtures of up to 209 individual chlorinated compounds. There are no known natural sources of PCBs. PCBs have been used as coolants and lubricants in transformers, capacitors, and other electrical equipment because they do not burn easily and are good insulators. The manufacture of PCBs was stopped in the United States in 1977 because of evidence that they build up in the environment and can cause cancers and other harmful health effects, including to the immune system, reproductive system, nervous system, and endocrine system. Products made before 1977 that may contain PCBs include old fluorescent lighting fixtures and electrical devices containing PCB capacitors, and old microscope and hydraulic oils.

ROUTINE TRANSPORT, USE, OR DISPOSAL OF HAZARDOUS MATERIALS

Throughout the SCAG region there are risks associated with the transportation-related use of hazardous materials. The transport of hazardous materials via truck, rail, and other modes involves the risk of accidental release during routine transportation. The use of hazardous materials and the generation of hazardous waste in the construction, maintenance, and operation of the transportation system are potential sources of risk and exposure. Finally, the disposal of hazardous materials may create residual contamination of soil or water and may be a source of risk when such sites are disturbed during the construction or operation of future transportation projects or associated development.

Hazardous materials are transported throughout the SCAG region by a variety of modes: truck, rail, air, ship, and pipeline. According to the Office of Hazardous Materials Safety (OHMS) in the U.S. Department of Transportation (USDOT), hazardous materials shipments can be regarded as equivalent to deliveries, but any given shipment may involve one or more movements, or trip segments, that may occur by different modes. For instance, a shipment might involve initial pickup by truck (one movement), a transfer to rail (a second movement), and a final delivery by truck again (for a total of three movements). Each movement creates risk of exposure to hazardous materials, depending on the hazardous material being moved, the mode of transport, and numerous other factors.

GOODS MOVEMENT

Goods movement generally refers to the movement of raw, semi-finished, and finished materials and products used by businesses and residents across the transportation system. These goods move in myriad ways and through complex systems, often using multiple modes of transportation (e.g., ships, trucks, trains, planes, etc.). Goods may be manufactured within the United States or another country, and transported to a business, retail store, or directly to consumers versus traditional purchases by consumers at physical retail stores. The efficient movement of these goods is critical to maintain a strong economy and ensure improvements in the quality of life of regional residents.

Goods movement supports industries and activities that provide jobs, tax revenue, and resources that bolster innovation, creativity, and access to local and global markets. Goods movement depends directly on the infrastructure that comprises the transportation network such as highways, rail lines, ports, and networks of warehousing and other distribution facilities. Maintaining and improving existing infrastructure, and expanding infrastructure capacity where appropriate, is key to ensuring the competitiveness of a growing economy. However, goods movement activities may potentially affect the physical environment. Growing trade and increased volumes of goods moving across the transportation system have contributed to greater congestion, safety concerns, harmful emissions of dangerous pollutants, wear-and-tear on roadways and impacts on local neighborhoods. As the metropolitan planning organization (MPO) for the region, SCAG has adopted a vision for the region's goods movement system.

Federal law (23 United States Code [USC]. Sections 134–135) mandates that MPOs encourage and promote the safe and efficient management, operation, and development of surface transportation systems that will serve the mobility needs of people and freight and foster economic growth and development within and between States and urbanized areas. Specifically, MPOs should consider projects and strategies that will increase the accessibility and mobility of people and for freight and enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

At the state level, MPOS are required to perform regional transportation planning to prepare and provide for the region's mobility in a fiscally and environmentally responsible manner, consistent with the needs, preferences, and sensibilities of the community. This coincides with Government Code Section 65041.1 and identifies planning considerations for freight that are consistent with federal requirements.

TREATMENT, STORAGE, AND DISPOSAL FACILITIES

A treatment, storage, and disposal facility (TSDF) means any area used to store hazardous wastes for more than 90 days, even if on the same site where the wastes were generated. Permits are required from the DTSC and/or the RWQCB to create and operate a TSDF of any kind. The terms "facility," "treat," "store," and "dispose" all have specific definitions found in 22 CCR Section 66260.10:

- A facility includes all contiguous land, structures, and appurtenances on or in the land used for treating, storing, or disposing of hazardous waste. A single facility may consist of several types or combinations of operational units.
- Treatment is defined as any method, technique, or process designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste nonhazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.
- Storage is defined as holding hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.
- Disposal is the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid or hazardous waste on or in the land or water. A disposal facility is any site where hazardous waste is intentionally placed and at which the waste will remain after closure.

There are currently 27 active hazardous material TSDFs in the SCAG region, as summarized on **Table 3.9-1, Hazardous Material Treatment Storage and Disposal Facilities in the SCAG Region.**

TABLE 3.9-1 Hazardous Material Treatment Storage and Disposal Facilities in the SCAG Region

FACILITY NAME	HANDLER ID	ADDRESS	CONTACT	OPERATOR
A & A Feros Non Feros Metal	CAL000098454	640 South Hill Street #743 Los Angeles, CA 90014		
Advanced Environmental Inc DBA World Oil Environmental Services	CAT080025711	13579 Whittram Avenue Fontana, CA 92335		
Agritec Int DBA Cleantech Environmental Inc	CAL000330453	5820 Martin Road Irwindale, CA 91706		
Chevron El Segundo Refinery	CAD008336901	324 West El Segundo Blvd. El Segundo, CA 90245		Chevron
Clean Harbors Westmorland, LLC	CAD000633164	5295 S Garvey Road Westmorland, CA 92281	Andrew M Yadvish, 7603449400 Ext. 4004	Clean Harbors Westmorland LLC
Crosby & Overton	CAD028409019	1610 West 17th Street Long Beach, CA 90813	Michael A Shlob, 5624325445 Ext. 228	Crosby And Overton INC
Demunno/Kerdoon	CAT080013352	2000 North Alameda Street Compton, CA 90222	Bonnie Booth, 3105377100 Ext. 224	Demunno/Kerdoon
World Oil Terminals - Vernon	CAT080033681	3650 East 26th Street Los Angeles, CA 90023	Rosemary Domino, 3232685056 Ext. 108	
Hazmat TSDF Inc.	CAD982444481	180 West Monte Avenue Rialto, CA 92376	Wade K Riddering, 9098734141	
Emerald Transformer Los Angeles, LLC	CAD050806850	5756 Alba Street Los Angeles, CA 90058	Roger R Fox, 3232772528	
Heraeus Precious Metals North America, Inc.	CAD060398229	15524 Carminita Road Santa Fe Springs, CA 90670	Peter Eckert, 5624831830	Heraeus Metal Processing, Inc.
Lighting Resources Inc	CAR000156125	805 Francis Street Ontario, CA 91761	Dan P Gillespie, 9099237252 Ext. 14	Dan Gillespie
Veolia ES Technical Solutions LLC Azusa	CAD008302903	1704 W First Street Azusa, CA 91702	Javed Hussain, 6268152220	
Pacific Resource Recovery Services	CAD008252405	3150 East Pico Blvd. Los Angeles, CA 90023	Mark Russell, 3232618114 Ext. 343	Pacific Resource Recovery
Phibro-Tech, Inc.	CAD008488025	8851 Dice Road Santa Fe Springs, CA 90670	Marty Voss, 5626988036 Ext. 120	Phibro-Tech, Inc.
Ecobat Resources California INC	CAD066233966	720 S. 7th Avenue City of Industry, CA 91746	Neal I Lyon, 6263302294 Ext. 242	
RHO-Chem Corp	CAD008364432	425 Isis Avenue Inglewood, CA 90301	Hector U Sanchez, 3237766233 Ext. 204	Philip Services Corporation
Safety-Kleen Systems Inc	CAT000613976	2120 South Yale Street Santa Ana, CA 92704	Nahid Toossi, 7144294355	Safety-Kleen Systems Inc
Safety-Kleen Systems Inc	CAT000613935	2918 Worthen Avenue Los Angeles, CA 90039	John Matthews, 6264010106	Safety-Kleen Systems Inc
Clean Harbors Wilmington LLC	CAD044429835	1737 E Denni Street Wilmington, CA 90744	Joe L Christopher, 3108359998 Ext. 499	Clean Harbors Wilmington LLC
US Ecology Vernon	CAD097030993	5375 South Boyle Avenue Vernon, CA 90058	Ingun Littorin, 3232771518 Ext. 1518	US Ecology

FACILITY NAME	HANDLER ID	ADDRESS	CONTACT	OPERATOR
General Electric International Inc.	CAD030584502	3601 East La Palma Avenue Anaheim, CA 9806		General Electric
Industrial Service Oil Co Inc.	CAD099452708	1700 South Soto Street Los Angeles, CA 90023		Industrial Service Oil Company Inc
Kinsbursky Brothers Supply Inc.	CAD088504881	1314 North Anaheim Blvd. Anaheim, CA 92801	7147388516	Kiburski Brothers International
Southern California Gas Company	CAD981422017	2424 East Olympic Blvd Los Angeles, CA 90021		Southern California Gas Company
Southern California Gas Company	CAT000625137	8101 South Rosemead Blvd Pico Rivera, CA 90660	8772380092	Southern California Gas Company

Source: DTSC 2023a

HAZARDOUS MATERIALS SITES

The following sections discuss known sites or types of sites where hazardous materials have been spilled or released into the environment.

PROPERTIES INCLUDED ON A LIST OF HAZARDOUS MATERIALS SITES PURSUANT TO GOVERNMENT CODE SECTION 65962.5

The provisions in Government Code Section 65962.5 are commonly referred to as the “Cortese List” (after the Legislator who authored the legislation that enacted it) (CalEPA 2023). The list, or a site’s presence on the list, has bearing on the local permitting process as well as on compliance with the California Environmental Quality Act (CEQA).

Government Code Section 65962.5 was originally enacted in 1985, and per subsection (g), the effective date of the changes called for under the amendments to this section was January 1, 1992. Because this statute was enacted over thirty years ago, some of the provisions refer to agency activities that were conducted many years ago and are no longer being implemented and, in some cases, the information to be included in the Cortese List does not exist. While Government Code Section 65962.5 makes reference to the preparation of a “list,” many changes have occurred related to web-based information access since 1992 and this information is now largely available on the websites of the responsible organizations. Those requesting a copy of the Cortese “list” are now referred directly to the appropriate information resources contained on the websites of the boards or departments that are referenced in the statute. The Cortese List currently consist of the following five data resources, all of which can be accessed at <https://calepa.ca.gov/SiteCleanup/CorteseList/>:

- Hazardous waste and substances sites from DTSC EnviroStor database
- Leaking underground storage tank sites from the SWRCB GeoTracker database
- Solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit.
- Active cease and desist orders (CDOs) and cleanup and abatement orders (CAOs) from SWRCB.
- Hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, as identified by DTSC.

Each of the five subsections below summarize the above-listed Cortese List data resources information for sites within the SCAG area.

ENVIROSTOR DATABASE OF HAZARDOUS WASTE AND SUBSTANCES SITES

EnviroStor is the DTSC data management system for tracking cleanup, permitting, enforcement and investigation efforts at hazardous waste facilities and sites with known contamination or sites where there may be reasons to investigate further that are under the jurisdiction of DTSC (DTSC 2023b). EnviroStor includes identification of formerly contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites. The types of sites within the SCAG area include the following:

- Federal Superfund (NPL): Identifies sites where the USEPA proposed, listed, or delisted a site on the NPL. The list of sites is developed and maintained by USEPA, which typically has primary regulatory oversight for the sites listed on the NPL.
- State Response: Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high priority and high potential risk.
- Voluntary Cleanup: Identifies sites with either confirmed or unconfirmed releases, and the project proponents have requested that DTSC oversee evaluation, investigation, and/or cleanup activities and have agreed to provide coverage for DTSC's costs.
- School: Identifies proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. School sites are further defined as "Cleanup" (remedial actions occurred) or "Evaluation" (no remedial action occurred) based on completed activities. All proposed school sites that will receive State funding for acquisition or construction are required to go through a rigorous environmental review and cleanup process under DTSC's oversight.
- Military Evaluation: Identifies military facilities that were Formerly Used Defense Sites (FUDS) with confirmed or unconfirmed releases and where DTSC is involved in investigation and/or remediation, either in a lead or support capacity. Facilities/sites with confirmed releases are generally considered high-priority and high potential risk. FUDS are further defined as State Response, Federal Superfund, or Military Evaluation sites.
- Corrective Action: Investigation or cleanup activities at RCRA or state-only hazardous waste facilities (that were required to obtain a permit or have received a hazardous waste facility permit from DTSC or USEPA) are called "corrective action."
- Evaluation/Investigation: Identifies suspected, but unconfirmed, contaminated sites that need or have gone through a limited investigation and assessment process. If a site is found to have confirmed contamination, it will change EnviroStor Help Desk: envirostor@dtsc.ca.gov 11 from Evaluation to either a State Response or Voluntary Cleanup site type. Sites found to have no contamination at the completion of the limited investigation and/or assessment process result in a No Action Required (for Phase I assessments) or No Further Action (for PEAs or Phase II assessments) determination.

The number of sites listed on EnviroStor that are within the SCAG area are listed below on **Table 3.9-2, Number of DTSC-Listed Sites by County**.

TABLE 3.9-2 Number of DTSC-Listed Sites by County

COUNTY	FEDERAL SUPERFUND (NPL)	SCHOOL CLEANUP	STATE RESPONSE	VOLUNTARY CLEANUP	CORRECTIVE ACTION SITES	MILITARY SITES	EVALUATION / INVESTIGATION SITES
Imperial	1	2	16	12	2	61	30
Los Angeles	26	157	169	468	230	261	1,039
Orange	4	14	50	115	47	47	283
Riverside	5	16	29	41	12	64	321
San Bernardino	7	23	35	63	39	126	224
Ventura	2	5	14	35	9	28	54
Total	45	217	313	734	339	587	1,951

Source: USEPA 2023; DTSC 2023c

LEAKING UNDERGROUND STORAGE TANKS

A UST system is a tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground. The majority of USTs contain petroleum. Sites that contain USTs use marketers who sell gasoline to the public (such as service stations and convenience stores) and nonmarketers who use USTs solely for their own needs (such as fleet service operators and local governments).

The greatest potential hazard from a leaking underground storage tank (LUST) is that the petroleum or other hazardous substance can seep into the soil and contaminate groundwater. A LUST can present other health and environmental risks, including the potential for fire and explosion. Until the mid-1980s, most USTs were made of bare steel, which is likely to corrode over time and allow UST contents to leak into the environment. Faulty installation or inadequate operating and maintenance procedures also can cause USTs to release their contents into the environment. GeoTracker is the SWRCB data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. GeoTracker contains records for sites that require cleanup, such as Leaking Underground Storage Tank (LUST) Sites, Department of Defense Sites, and Cleanup Program Sites (SWRCB 2023). Military and Cleanup Program Sites are discussed above in the DTSC EnviroStor section. GeoTracker also contains records for various unregulated projects as well as permitted facilities including Irrigated Lands, Oil and Gas Production, operating Permitted USTs, and Land Disposal Sites.

There are nearly 15,000 LUSTs in the SCAG region, with over half in Los Angeles County, and the least number, by an order of magnitude, in Imperial County, as listed below in **Table 3.9-3, Leaking Underground Storage Tank Cleanup Sites**.

TABLE 3.9-3 Leaking Underground Storage Tank Cleanup Sites

COUNTY	LEAKING UNDERGROUND STORAGE TANKS
Imperial	236
Los Angeles	7,591
Orange	3,023
Riverside	1,364
San Bernardino	1,086
Ventura	1,408

Source: SWRCB 2023

SOLID WASTE MANAGEMENT UNITS WITH HAZARDOUS WASTE LEVELS OUTSIDE THE WASTE MANAGEMENT UNIT

A solid waste management unit is any discernible unit at which solid wastes have been placed at any time, for the management of solid waste, such as a transfer station, solid waste storage building, a solid waste processing system, a resource recovery system, an incinerator, a surface impoundment, a surface waste pile, a land treatment area, or a landfill. The following **Table 3.9-4, Solid Waste Management Units with Hazardous Waste Levels Outside the Waste Management Unit**, identifies solid waste disposal facilities within the SCAG area from which there is a migration of hazardous waste to areas outside of the waste management unit and for which the local RWQCB has notified the DTSC pursuant to subdivision (e) of Section 13273 of the Water Code.

TABLE 3.9-4 Solid Waste Management Units with Hazardous Waste Levels Outside the Waste Management Unit

COUNTY	LEAKING UNDERGROUND STORAGE TANK
Imperial	None
Los Angeles	Operating Industries Landfill, Monterey Park
Orange	McColl Site
Riverside	Stringfellow Quarry Acid Pits
San Bernardino	None
Ventura	None

Source: DTSC 2023c

ACTIVE CEASE AND DESIST ORDERS AND CLEANUP AND ABATEMENT ORDERS FROM SWRCB

The active CDOs and CAOs from the SWRCB data resource website states that this list contains many CDOs and CAOs that do not concern the discharge of wastes that are hazardous materials. Many of the listed orders concern, as examples, discharges of domestic sewage, food processing wastes, or sediment that do not contain hazardous materials. However, the SWRCB database does not distinguish between these types of orders. For questions about whether a specific order concerns the discharge of wastes that are hazardous materials, the user must contact the local RWQCB. The number of CDO and CAO sites within the SCAG area are listed below in **Table 3.9-5, Active CDO and CAO Sites**.

TABLE 3.9-5 CDO and CAO Sites

COUNTY	ACTIVE CDO AND CAO SITES
Imperial	22
Los Angeles	18
Orange	29
Riverside	37
San Bernardino	86
Ventura	3

Source: DTSC 2023c

HAZARDOUS WASTE FACILITIES SUBJECT TO CORRECTIVE ACTION

Hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, as identified by DTSC, are sites where DTSC has taken or contracted for corrective action because a facility owner/operator has failed to comply with a date for taking corrective action in an order issued under HSC Section 25187, or because DTSC determined that immediate corrective action was necessary to abate an imminent or substantial endangerment. This is a very small and specific subgroup of facilities and they are not separately posted on the DTSC EnviroStor website (DTSC 2023c). The facilities in the SCAG region listed below fall under this category:

- AAD Distribution & Dry Cleaning Inc., 2306 East 38th Street, Vernon
- The Marquardt Company, 16555 Saticoy Street, Van Nuys

FEDERAL SUPERFUND SITES

Hazardous materials may be released into the environment in a variety of ways, including permitted or illicit use and accidental or intentional disposal or spillage. Before the 1980s, most land disposal of chemicals was unregulated, resulting in numerous industrial properties and public landfills becoming the recipients of authorized and unauthorized hazardous materials. In general, the largest and most contaminated of these sites became federal Superfund sites in the early 1980s, so named for their eligibility to receive cleanup money from a federal fund established for that purpose under CERCLA. Sites are added to the NPL following a hazard ranking system. The USEPA maintains this list of federal Superfund sites, as well as a more extensive list of all sites with potential to be listed known as CERCLIS (USEPA 2023a). The SCAG area has 28 listed federal Superfund sites, as listed below in **Table 3.9-6, Federal Superfund Sites in the SCAG Region.**

TABLE 3.9-6 Federal Superfund Sites in the SCAG Region

SITE NAME	CITY	SITE EPA ID
Alark Hard Chrome	Riverside	CAD098229214
Cooper Drum Company	South Gate	CAD055753370
Del Amo	Los Angeles	CAD029544731
George Air Force Base	Victorville	CA2570024453
Halaco Engineering Company	Oxnard	CAD009688052
Jervis B. Webb Co.	South Gate	CAD008339467
Jet Propulsion Laboratory (NASA)	Pasadena	CA9800013030
March Air Force Base	Riverside	CA4570024527
McColl	Fullerton	CAD980498695
Montrose Chemical Corp.	Torrance	CAD008242711
Newmark Ground Water Contamination	San Bernardino	CAD981434517
Norton Air Force Base	San Bernardino	CA4570024345
Omega Chemical Corporation	Whittier	CAD042245001
Operating Industries, Inc., Landfill	Monterey Park	CAT080012024
Orange County North Basin	Orange County	CAN000900251
Pacific Coast Pipe Lines	Fillmore	CAD980636781
Pemaco Maywood	Maywood	CAD980737092
Rockets, Fireworks, and Flares (RFF)	Rialto	CAN000905945
San Fernando Valley (Area 1)	Los Angeles	CAD980894893
San Fernando Valley (Area 2)	Glendale, Los Angeles	CAD980894901
San Fernando Valley (Area 4)	Los Angeles	CAD980894976
San Gabriel Valley (Area 1)	El Monte	CAD980677355
San Gabriel Valley (Area 2)	Baldwin Park Area	CAD980818512
San Gabriel Valley (Area 3)	Alhambra	CAD980818579
San Gabriel Valley (Area 4)	La Puente	CAD980817985
Southern Avenue Industrial Area	South Gate	CAN000905902
Stringfellow	Glen Avon Heights	CAT080012826
Waste Disposal, Inc.	Santa Fe Springs	CAD980884357

Source: USEPA 2023a

BROWNFIELD SITES

Brownfields sites are those areas that were previously used for *industrial* purposes or certain commercial uses. The land may be contaminated by low concentrations of *hazardous waste* or *pollution*, and has the potential to be reused once it is cleaned up. Both the USEPA and DTSC maintain lists of known brownfield sites. These sites are often difficult to inventory due to their owners' reluctance to publicly label their property as potentially

contaminated. In California, numerous regulatory barriers have blocked effective reuse of brownfields sites, including uncertainty as to cleanup levels and ultimate cleanup cost.

RADIOACTIVE MATERIALS – SAN ONOFRE NUCLEAR GENERATING STATION

Although there are no nuclear power stations within the SCAG region, the retired San Onofre Nuclear Generating Station (SONGS) is located just south of Orange County near San Clemente, in the northwestern corner of San Diego County and is jointly owned by SCE, San Diego Gas & Electric, and the City of Riverside (California Energy Commission 2020). SONGS went offline in January 2012 and was ordered by the Nuclear Regulatory Commission to stay offline while tubing wear issues were investigated. Subsequently, plant owners announced in June 2013 that remaining Units 2 and 3 would be permanently retired. Since the decision to retire the facility, SCE has initiated the process of providing for final repository of radioactive materials from SONGS. Spent fuel storage from SONGS poses a risk to the SCAG region if cracks develop in the thin steel canisters that will store the waste, and radioactive waste material is released into the environment. In 2015, SCE provided an update to the public, stating that all nuclear fuel would be transferred into dry cask storage and will remain on-site until the federal government develops a program to dispose of the waste. On October 17, 2019, the California Coastal Commission approved a coastal development permit allowing dismantlement of plant structures and decontamination of the site (SONGS 2019).

PROXIMITY TO SCHOOLS

As described in Section 3.15.3, *Public Services*, there are over 6,000 public and private schools in the SCAG region ranging from K–12 through the California State University and University of California university systems. Over half of the K–12 schools and community colleges in Los Angeles County, and the least number of the K–12 schools and community colleges are located in Imperial County, with comparable statistics for private schools. The California Education Code 17213(b) has minimum standards to minimize the potential for hazardous emissions within 0.25 miles of a school site, as discussed further below in Section 3.9.2, *Regulatory Framework*.

PROXIMITY TO PUBLIC, PUBLIC USE, OR PRIVATE AIRPORTS

As discussed in Section 3.17, *Transportation*, the SCAG region contains seven commercial airports with scheduled passenger service, seven government/military airfields, and over 30 reliever and general aviation airports. The existing active commercial service airports handle the majority of passenger air traffic (see Map 2-6, Major Airports in SCAG Region).

INTELLIGENT TRANSPORTATION SYSTEMS

Communities across the SCAG region are starting to incorporate intelligent transportation systems (ITS) into their transportation systems including both transit and roadway networks. ITS applications have the potential to significantly reduce road traffic accidents and their impacts in various ways that reduce the number, frequency and severity of incidents. ITS applications can smooth traffic flow on motorways using variable message speed signs; offer intersection signal control and dynamic traffic management; provide safe opportunities for pedestrians to cross busy roads; enhance safety support for drivers of vehicles to be aware of the presence of cyclists and others using the roads; activate automatic call-out of emergency services; and capture data for enforcement purposes (PIARC 2023). ITS technologies for improving road safety include speed enforcement, red light enforcement, driver assistance, intelligent speed adaptation, accident detection and response, and work zone safety management. Performance measures that can be used to assess ITS benefits can be direct or indirect. Direct

measures include overall crash rate, fatality and injury rates – for example, percentage reduction in collisions (but this is difficult to obtain empirically from operational tests since real accidents in field trials are infrequent). Indirect measures include vehicle speeds, speed variability, the number of traffic violations, percentage reduction in rescue response time and public perceptions (PIARC 2023).

One example of an ITS is in the City of Los Angeles where the Los Angeles Fire Department (LAFD) in collaboration with LADOT has developed a fire preemption system (FPS), a system that automatically turns traffic lights to green for emergency vehicles traveling on designated streets in the city (Los Angeles Fire Department 1988).

3.9.2 REGULATORY FRAMEWORK

FEDERAL

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

The Occupational Safety and Health Act (29 Code of Federal Regulations [CFR] Parts 70 to 2400), which is implemented by OSHA, contains provisions with respect to hazardous materials handling. OSHA was created to assure safe and healthful working conditions by setting and enforcing standards and by providing training, outreach, education, and assistance. OSHA provides standards for general industry and construction industry on hazardous waste operations and emergency response. OSHA requirements, as set forth in 29 CFR Section 1910, et. seq., are designed to promote worker safety, worker training, and a worker's right-to-know. The U.S. Department of Labor has delegated the authority to administer OSHA regulations to the State of California. The Cal/OSHA program (codified in the CCR Title 8 generally and in the Labor Code Sections 6300–6719) is administered and enforced by the Division of Occupational Safety and Health (DOSH). Cal/OSHA is very similar to the OSHA program. Among other provisions, Cal/OSHA requires employers to implement a comprehensive, written Injury and Illness Prevention Program for potential workplace hazards, including those associated with hazardous materials.

RESPONSE CONSERVATION AND RECOVERY ACT

RCRA (42 USC 2) was the first major federal act regulating the potential health and environmental problems associated with hazardous and nonhazardous solid waste. RCRA and the implementation regulations developed by the USEPA provide the general framework for the national hazardous and nonhazardous waste management systems. This framework includes the determination of whether hazardous wastes are being generated, techniques for tracking wastes to eventual disposal, and the design and permitting of hazardous waste management facilities.

RCRA amendments enacted in 1984 and 1986 began the process of eliminating land disposal as the principal hazardous waste disposal method. Hazardous waste regulations promulgated in 1991 address site selection, design, construction, operation, monitoring, corrective action, and closure of disposal facilities. Additional regulations addressing solid waste issues are contained in 40 CFR, Part 258.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT

CERCLA (1980; 42 USC Sections 1906 et seq.), also known as the Superfund Act, outlines the potential liability related to the cleanup of hazardous substances; available defenses to such liability; appropriate inquiry into site status under Superfund, which is the federal government's program to clean up the nation's uncontrolled hazardous waste sites; statutory definitions of hazardous substances and petroleum products; and the petroleum

product exclusion under CERCLA. CERCLA provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites, provides for liability of persons responsible for releases of hazardous waste at these sites, and establishes a trust fund to provide for cleanup when no responsible party can be identified. CERCLA also establishes the National Contingency Plan (NCP), which provides guidelines and procedures necessary to respond to releases and threatened releases of hazardous substances. The SCAG region lies within USEPA Region 9, which has the responsibility for designation and oversight of Superfund sites on the NPL. As discussed in Section 3.9.1, *Environmental Setting, Federal Superfund Sites*, there are 28 Superfund sites on the NPL in the SCAG region.

EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (EPCRA)

EPCRA of 1986 (42 USC 116, Sections 9601 et seq.) was created to help communities plan for emergencies involving hazardous substances. EPCRA requires hazardous chemical emergency planning by federal, state, and local governments; Native American tribes; and industry. It also requires industry to report on the storage, use, and releases of hazardous chemicals to federal, state, and local governments.

SUPERFUND AMENDMENT AND REAUTHORIZATION ACT (SARA), TITLE III

SARA Title III of 1986 is the EPCRA (40 CFR Parts 350–372). Facilities are required to report the following items on USEPA Form R, the Toxic Chemical Release Inventory Reporting Form: facility identification, off-site locations where toxic chemicals are transferred in wastes, chemical-specific information, and supplemental information. Form R requires a facility to list the hazardous substances that are handled on-site and to account for the total aggregate releases of listed toxic chemicals for the calendar year. Releases to the environment include emissions to the air, discharges to surface water, and on-site releases to land and underground injection wells.

HAZARDOUS MATERIALS TRANSPORTATION ACT

The Hazardous Materials Transportation Act of 1975 (Title 49 USC 51, Sections 5101–5127) is the principal federal law regulating the transportation of hazardous materials. Its purpose is to “protect against the risks to life, property, and the environment that are inherent in the transportation of hazardous material in intrastate, interstate, and foreign commerce” under the authority of the U.S. Secretary of Transportation. Regulations implementing the Hazardous Materials Transportation Act of 1975 specify additional requirements and regulations with respect to the transport of hazardous materials. For example, the Act requires that every employee who transports hazardous materials receive training to recognize and identify hazardous materials and become familiar with hazardous materials requirements. Drivers are also required to be trained in function and commodity specific requirements.

PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION HAZARDOUS MATERIALS REGULATIONS

The Pipeline and Hazardous Materials Safety Administration (PHMSA) is a USDOT agency, created under the Norman Y. Mineta Research and Special Programs Improvement Act (P.L. 108-426) of 2004. PHMSA develops and enforces regulations for the safe, reliable, and environmentally sound operation of the nation's 2.6-million-mile pipeline transportation system and the nearly 1 million daily shipments of hazardous materials by land, sea, and air. PHMSA comprises two safety offices, the Office of Pipeline Safety and OHMS. PHMSA's Office of Pipeline Safety monitors operator compliance through field inspections of pipeline facilities and construction projects; inspections of operator management systems, procedures, and processes; and incident investigations. PHMSA's Office of Hazardous Materials Enforcement assures compliance through field inspections and investigations of shipper and

carrier transportation facilities; packaging manufacturing, requalification, repair and reconditioning facilities; cargo vessel ports; rail freight yards; motor carrier and air cargo terminals; chemical and explosive manufacturing plants. In addition, the Office of Hazardous Materials Enforcement conducts civil and criminal enforcement investigations, accident and incident investigation and failure analysis, outreach and education elements with other agencies, industry and stakeholders, and emergency response.

CODE OF FEDERAL REGULATIONS TITLE 14, PART 77

The Federal Aviation Administration's (FAA) primary role is to promote aviation safety and control the use of airspace. Public use airports that are subject to the FAA's grant assurances must comply with specific FAA design criteria, standards, and regulations. Land use safety compatibility guidance from the FAA is limited to the immediate vicinity of the runway, the runway protection zones at each end of the runway, and the protection of navigable airspace. The FAA enforces safety standards and investigates and corrects violations, as appropriate.

Title 14, Part 77 of the CFR, *Safe Efficient Use and Preservation of the Navigable Airspace*, establishes the federal review process for determining whether proposed development activities in the vicinity of an airport have the potential to result in a hazard to air navigation. 14 CFR Part 77 identifies criteria that govern which projects require notice to be filed with the FAA, as well as identifying standards for determining whether a proposed project would represent an obstruction "that may affect safe and efficient use of navigable airspace and the operation of planned or existing air navigation and communication facilities." Objects that are identified as obstructions based on these standards are presumed to be hazards until an aeronautical study conducted by the FAA determines otherwise.

14 CFR Part 77.9, Construction or Alteration Requiring Notice, indicates that notice must be filed with the FAA for any construction or alteration of objects within 20,000 feet of a public use airport runway when the height of the objects exceeds (i.e., is taller than) an imaginary surface with a 100:1 (1 foot upward per 100 feet horizontally) slope from the nearest point of the nearest runway. This requirement applies when the airport has at least one runway that exceeds 3,200 feet in length; for shorter runways, the notification surface has a 50:1 slope and extends 10,000 feet from the runway. For heliports, the notification surface has a 25:1 slope and extends 5,000 feet from the helicopter takeoff and landing area, commonly referred to as final approach and takeoff area. The notification requirements apply to all public-use airports, military airports, and heliports. When FAA notification is required, it must be provided using FAA Form 7460-1, Notice of Proposed Construction or Alteration.

SPILL PREVENTION, CONTROL, AND COUNTERMEASURE, 40 CFR PART 112

Facilities with aboveground oil storage facilities greater than 1,320 gallons of oil and/or with total aggregate capacity of completely buried storage tanks greater than 42,000 gallons of oil are regulated under the SPCC rules under 40 CFR Part 112. These facilities need to be regulated to prevent discharge of oil into navigable waters or adjoining shorelines. Owners of a facility develop a response plan to prepare and respond to oil discharge or threats of discharge during drilling, producing, gathering, storing, processing, refining, transferring, distributing, using, or consuming oil. The USEPA is the lead federal response agency for providing cleanup of oil spills to prevent, prepare for, and respond to spills that occur in and around inland waters of the United States.

INTERNATIONAL FIRE CODE

The International Fire Code (IFC), created by the International Code Council, is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The IFC regulates the use, handling, and storage requirements for

hazardous materials at fixed facilities. The IFC and the International Building Code use a hazard classification system to determine what protective measures are required for fire and life safety. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the IFC employs a permit system based on hazard classification. The IFC is updated every three years and is the basis for the California Fire Code (CFC) (also updated triennially). Local jurisdictions then adopt the CFC, in some cases with local amendments.

PRESIDENTIAL POLICY DIRECTIVE 8: NATIONAL PREPAREDNESS

The National Response Framework (NRF) is an essential component of the National Preparedness System mandated in Presidential Policy Directive 8: National Preparedness (PPD-8). PPD-8 is aimed at strengthening the security and resilience of the United States through systematic preparation for the threats that pose the greatest risk to the security of the Nation. PPD-8 defines five mission areas—Prevention, Protection, Mitigation, Response, and Recovery—and mandates the development of a series of policy and planning documents to explain and guide the Nation’s collective approach to ensuring and enhancing national preparedness. The NRF presents the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies. It establishes a comprehensive, national, all-hazards approach to domestic incident response. The National Response Plan was replaced by the NRF effective March 22, 2008, and updated most recently in June 2016.

The NRF defines the principles, roles, and structures that organize response protocols as a nation. The NRF:

- Describes how communities, tribes, states, the federal government, private-sectors, and nongovernmental partners work together to coordinate national response;
- Describes specific authorities and best practices for managing incidents; and
- Builds upon the National Incident Management System, which provides a consistent template for managing incidents.

FEDERAL RAILROAD ADMINISTRATION OFFICE OF RAILROAD SAFETY

The Federal Railroad Administration’s Office of Railroad Safety promotes and regulates safety throughout the Nation’s railroad industry. The regional offices enforce compliance with regulations related to hazardous materials, motive power equipment, operating practices, signal and train control, and tracks. California is in Region 7, which is headquartered in Sacramento, California. In addition, the Federal Railroad Administration conducts railroad safety and stakeholder training; accident and employee fatality investigations and reporting; partnerships between labor, management, and the agency that address systemic initiatives; and development and implementation of safety rules and standards.

FEDERAL EMERGENCY MANAGEMENT AGENCY

In March 2003, the Federal Emergency Management Agency (FEMA) became a department of the U.S. Department of Homeland Security (DHS), pursuant to 44 CFR, Chapter 1 Part 201. The primary mission of FEMA is to reduce the loss of life and property and protect the nation from all hazards, including natural disasters, acts of terrorism, and other human-made disasters, by leading and supporting the nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation. SCAG is under the jurisdiction of FEMA Region 9. In Southern California, FEMA Region 9 specifically plans for hazards such as major earthquakes and wildfires.

FEMA is responsible for management of floodplain areas defined as the lowland and relatively flat areas adjoining inland and coastal waters subject to a one percent or greater chance of flooding in any given year (the 100-year floodplain). FEMA requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year floodplain. It requires avoiding incompatible floodplain development, consistency with the standards and criteria of the National Flood Insurance Program, and restoration and preservation of natural and beneficial floodplain values.

NATIONAL FIRE PLAN

The Department of the Interior's National Fire Plan is intended to ensure an appropriate federal response to severe wildland fires, reduce fire impacts to rural communities, and ensure sufficient firefighting capacity in the future. The Rural Fire Assistance program is funded to enhance the fire protection capabilities of rural fire districts and safe and effective fire suppression in the wildland/urban interface. The program promotes close coordination among local, state, tribal, and federal firefighting resources by conducting training, equipment purchase, and prevention activities on a cost-shared basis.

STATE

CALIFORNIA CONSTITUTION

As stated in California Constitution Article XIII – Taxation, Section 35 Subdivision (a)(2), “The protection of the public safety is the first responsibility of local government and local officials have an obligation to give priority to the provision of adequate public safety services.” As such, it is incumbent upon local jurisdictions in California to prioritize the provision of adequate facilities, personnel, equipment, and services to meet the public safety demands of the community.

SENATE BILL 158

Senate Bill (SB) 158, which Governor Newsom signed into law in 2021, made several significant changes to the funding and governance of DTSC (DTSC 2023f). In addition to restructuring and increasing the fees that fund DTSC's operations, the bill established a new Board of Environmental Safety (BES) and imposed new reporting and planning requirements on DTSC. Specifically, DTSC is now required to issue a report on the management of hazardous waste in the state every three years, beginning in 2023, and a triennial Hazardous Waste Management Plan based on these reports, beginning in 2025. A draft version of DTSC's first triennial Hazardous Waste Management Report, which was prepared pursuant to California Health and Safety Code Section 25135, was recently released in 2023. The 2023 Draft Hazardous Waste Management Report is the starting point of a continuous process of research and development of Hazardous Waste Management Plans. As such, the Report:

- Establishes a baseline understanding of the management of hazardous waste in the state of California.
- Identifies data gaps and items that require additional research.
- Begins to develop plans to fill data gaps and complete additional research.

Specifically, the Report provides available information about the types and quantities of hazardous wastes generated in the state as well as the destinations and ultimate dispositions of these wastes. DTSC will use information from this and subsequent Reports to inform the triennial Hazardous Waste Management Plan (Plan). The Plans will recommend strategies for reductions in hazardous waste generation and strategies for managing

more waste within the borders of California, and they will also provide insight into issues of concern, such as the impacts of hazardous waste on disadvantaged communities.

HAZARDOUS WASTE CONTROL LAW

The Hazardous Waste Control Act (Health and Safety Code Sections 25100 et seq.) created the state hazardous waste management program, which is similar to but more stringent than the federal RCRA program. The Act is implemented by regulations contained in CCR Title 26, which describes the following required aspects for the proper management of hazardous waste: identification and classification; generation and transportation; design and permitting of recycling, treatment, storage, and disposal facilities; treatment standards; operation of facilities and staff training; and closure of facilities and liability requirements. These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of such waste. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from generator to transporter to the ultimate disposal location. Copies of the manifest must be filed with DTSC.

DTSC VAPOR INTRUSION GUIDANCE

The Department of Toxic Substances Control (DTSC) and State Water Resources Control Board (State Water Board) developed the *Final Draft Supplemental Guidance: Screening and Evaluating Vapor Intrusion* (Supplemental VI Guidance) for use with existing State guidance in conducting vapor intrusion evaluations in California (DTSC 2023e).

The Supplemental VI Guidance provides a screening process to determine if buildings near known or suspected subsurface contamination by vapor-forming chemicals are potentially affected by vapor intrusion. The process focuses the investigation and sampling for early assessment of potential vapor intrusion health risks for building occupants. The Supplemental VI Guidance is meant to promote Statewide consistency in site investigation and cleanup at sites where contaminants in soil gas and groundwater pose an unacceptable risk to current and future building occupants. The four-step process for screening buildings for vapor intrusion and assessing potential health risk includes:

- Identifying buildings near contamination to evaluate first for vapor intrusion and plan for public outreach and participation.
- Collecting soil gas samples outside buildings to determine the potential for VI and use a vapor attenuation factor to estimate human health risks.
- Collecting indoor air, subslab soil gas, and outdoor air samples and assess health risks.
- Evaluating the need to manage current and future VI risk based on indoor air data, subsurface data, and other lines of evidence.

The Supplemental VI Guidance also provides information and recommendations on:

- Using the USEPA 2015 vapor attenuation factors for soil gas and groundwater.
- Considering sewers as a potential vapor intrusion migration route when sewers intersect contamination in the subsurface.
- Using the State Water Board's GeoTracker for building a California-specific VI database.

HAZARDOUS MATERIALS RELEASE RESPONSE PLANS AND INVENTORY LAW AND UNIFIED HAZARDOUS WASTE AND HAZARDOUS MATERIALS MANAGEMENT REGULATORY PROGRAM

The Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act; HSC Division 20 Chapter 6.95 [25500–25547.8]) governs hazardous materials handling, reporting requirements, and local jurisdiction surveillance programs. The Business Plan Act requires that businesses that store hazardous materials onsite prepare a hazardous materials business plan (HMBP) and submit it to the local CUPA. CalEPA adopted regulations in January 1996 that implemented the Unified Program at the local level (Health and Safety Code Sections 25404 et seq). The agency responsible for implementation of the Unified Program is called the CUPA.

The Unified Program, codified in California Health and Safety Code Sections 25404 et seq., requires the administrative consolidation of six hazardous materials and waste programs under one agency, a CUPA. The following programs are consolidated under the unified program:

- Hazardous Materials Release Response Plans, and Inventory (also referred to as HMBPs)
- California Accidental Release Program
- USTs
- Aboveground Petroleum Storage SPCCs
- Hazardous Waste Generation and Onsite Treatment
- UFC Plans and Inventory Requirements

The CUPA is charged with the responsibility of conducting compliance inspections of over hazardous materials facilities within its area of jurisdiction. These facilities and businesses handle hazardous materials, generate or treat a hazardous waste, and/or operate underground storage tanks. The CUPA uses education and enforcement to minimize the risk of chemical exposure to human health and the environment. The CUPA forwards important facility information to local fire prevention agencies that enables them to take appropriate protective action in the event of an emergency at regulated facilities. In order to legally store and use hazardous materials above the trigger quantities, users must apply for permits and demonstrate satisfactory compliance with regulations. The quantities that trigger disclosure are based on the maximum quantity on site at any time:

- 55 gallons, 500 pounds, or 200 cubic feet for 30 days or more at any time in the course of a year
- Any amount of hazardous waste
- Category I or II pesticides
- Explosives
- Extremely hazardous substances above the threshold planning quantity

The CUPAs within the SCAG area are listed below. Some cities within counties established their own CUPAs.

- Imperial County: DTSC
- Los Angeles County except for the cities listed below: Los Angeles County Fire Department
 - El Segundo City Fire Department
 - Glendale City Fire Department

- Long Beach: Long Beach Bureau of Environmental Health and Fire Department
- Los Angeles City Fire Department
- Santa Fe Springs Fire-Rescue
- Santa Monica Fire Departments
- Vernon Health & Environmental Control Department
- Orange County except for Anaheim: Orange County Environmental Health
 - Anaheim City Fire Department
- Riverside County: Riverside County Hazardous Materials Management Branch
- San Bernardino County: San Bernardino County Fire Department
- Ventura County except for Oxnard: Ventura County Environmental Health Division
 - Oxnard Fire Department

LEMPERT-KEENE-SEASTRAND OIL SPILL PREVENTION AND RESPONSE ACT

The Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990 granted the Office of Spill Prevention and Response (OSPR) the authority to direct prevention, removal, abatement, response, containment, and cleanup efforts with regard to all aspects of any oil spill in marine waters of California. OSPR implements the California Oil Spill Contingency Plan, consistent with the NCP, which pays special attention to marine oil spills and impacts to environmentally- and ecologically-sensitive areas. In 2014, the OSPR program was expanded to cover all statewide surface waters at risk of oil spills from any source, including pipelines and the increasing shipments of oil transported by railroads.

CALIFORNIA DISASTER ASSISTANCE ACT

The California Disaster Assistance Act (CCR Title 19, Chapter 6) authorizes the Director of the California Governor’s Office of Emergency Services (Cal OES) to administer a disaster assistance program that provides financial assistance from the state for costs incurred by local governments as a result of a disaster event. Funding for the repair, restoration, or replacement of public real property damaged or destroyed by a disaster is made available when the Director concurs with a local emergency proclamation requesting state disaster assistance.

CALIFORNIA GOVERNOR’S OFFICE OF EMERGENCY SERVICES

In 2009, the State passed legislation creating Cal OES and authorized it to prepare a Standard Emergency Management System (SEMS) program (Title 19 CCR Section 2401 et seq.), which sets forth measures by which a jurisdiction should handle emergency disasters. In California, SEMS provides the mechanism by which local governments request assistance. The OES is an agency responsible for overseeing and coordinating emergency preparedness, response, recovery, and homeland security activities, in cooperation with fire and law and other enforcement agencies. Each county within the SCAG region has an OES that is responsible for coordinating and maintaining resources necessary for first responders to protect the community. In addition to maintaining a material safety data sheets, notifications to the OES must be made when there is a hazardous material incident or spill that may require clean-up. OES is responsible for preparing, and gathering information on incident, participate in offering guidance to residents and communities affected by incident, coordinating with FEMA, state, and

county/city agencies for other needed resource, and implement a reduction of risk program to prevent future accidents causing physical and natural or human casualties.

The Cal OES mission statement is “Protect lives and property, build capabilities, and support our communities for a resilient California.” Cal OES goals include:

- **Goal 1:** Anticipate and enhance prevention and detection capabilities to protect our State from all hazards and threats.
- **Goal 2:** Strengthen California’s ability to plan, prepare for, and provide resources to mitigate the impacts of disasters, emergencies, crimes, and terrorist events.
- **Goal 3:** Effectively respond to and recover from both human-caused and natural disasters.
- **Goal 4:** Enhance the administration and delivery of all state and federal funding and maintain fiscal and program integrity.
- **Goal 5:** Develop a united and innovative workforce that is trained, experienced, knowledgeable, and ready to adapt and respond.
- **Goal 6:** Strengthen capabilities in public safety communication services and technology enhancements.

LOCAL COMMUNITY RAIL SECURITY ACT

The Local Community Rail Security Act of 2006 (Public Utilities Code Sections 7665–7667) requires all rail operators to provide security risk assessments to CPUC, the Director of Homeland Security, and the Catastrophic Event Memorandum Account that describe the following:

- Location and function of each rail facility
- Types of cargo stored at or typically moved through the facility
- Hazardous cargo stored at or moved through the facility
- Frequency of hazardous movements or storage
- A description of sabotage-terrorism countermeasures
- Employee training programs
- Emergency response procedures
- Emergency response communication protocols

HAZARDOUS SUBSTANCES ACCOUNT ACT (STATE SUPERFUND) (HSC SECTIONS 25300-25301)

DTSC’s Site Mitigation and Restoration Program, promulgated under California Health and Safety Code Chapters 6.5 and 6.8, oversees the cleanup of State Superfund Sites. State Superfund sites include both responsible party-lead enforcement sites (i.e., sites where DTSC has issued enforcement orders) and orphan sites. DTSC works directly with the responsible party or parties on the enforcement sites, while orphan sites are ones where DTSC is unable to identify a viable responsible party or parties. These projects are located throughout California, in small and large urban areas, in small and large suburban communities, and in the rural heartland of California. Some of the projects are former dry cleaners, metal plating shops, abandoned mines, old wood treating sites, and several types of former manufacturing facilities.

EMERGENCY MANAGED MUTUAL AID SYSTEM

Cal OES developed the Emergency Managed Mutual Aid (EMMA) System in response to the 1994 Northridge Earthquake. The EMMA System coordinates emergency response and recovery efforts along the coastal, inland, and southern regions of California. The purpose of EMMA is to provide emergency management personnel and technical specialists to afflicted jurisdictions in support of disaster operations during emergency events. Objectives of the EMMA Plan is to provide a system to coordinate and mobilize assigned personnel, formal requests, assignment, training, and demobilization of assigned personnel; establish structure to maintain the EMMA Plan and its procedures; provide the coordination of training for EMMA resources, including SEMS training, coursework, exercises, and disaster response procedures; and to promote professionalism in emergency management and response. The EMMA Plan was updated in November 2012 and supersedes the 1997 EMMA Plan and November 2001 EMMA Guidance.

HAZARDOUS MATERIALS RELEASE CLEANUP (ASSEMBLY BILL 440 CHAPTER 588)

Assembly Bill (AB) 440 Chapter 588, passed into law in 2013, authorizes a local jurisdiction to take clean up action similar to that under the Polanco Redevelopment Act that the local jurisdiction determines is necessary, consistent with other state and federal laws, to remedy or remove a release of hazardous substances within the boundaries of the local jurisdiction. AB 440 allows the local jurisdiction to designate another agency, in lieu of the department or the regional board, to review and approve a cleanup plan and to oversee the cleanup of hazardous material from a hazardous material release site, under certain conditions. It also provides immunity to the local jurisdiction as long as the action is in accordance with a cleanup plan prepared by a qualified independent contractor, and approved by the department, a regional board, or the designated agency, and the cleanup is undertaken and properly completed. Finally, AB 440 authorizes the local jurisdiction to recover cleanup costs from the responsible party.

ASBESTOS REGULATIONS

Naturally Occurring Asbestos Regulations. In 1990, ARB issued an Airborne Toxic Control Measure (ATCM), which prohibited the use of serpentine aggregate for surfacing if the asbestos content was 5 percent or more. In July 2000, ARB adopted amendments to the existing ATCM prohibiting the use or application of serpentine, serpentine-bearing materials and asbestos-containing ultramafic rock for covering unpaved surfaces unless it has been tested using an approved asbestos bulk test method and determined to have an asbestos content that is less than 0.25 percent. In July 2001, ARB adopted a new ATCM for construction, grading, quarrying, and surface mining operations in areas with serpentine or ultramafic rocks. These regulations are codified in Title 17, Section 93105 of the CCR. The regulations require preparation and implementation of an Asbestos Dust Mitigation Plan for construction or grading activities on sites greater than 1 acre in size with known Naturally Occurring Asbestos (NOA) soils. The air districts enforce this regulation.

[Joel Abbreviations Continue Here] In October 2000, the Governor's Office of Planning and Research issued a memorandum providing guidance to lead agencies in analyzing the impacts of NOA on the environment through CEQA review process. In November 2000, the California Department of Real Estate added a section to subdivision forms that includes questions related to NOA on property proposed for development. In 2004, as part of its school-site review program, the DTSC's School Property Evaluation and Cleanup Division released interim guidance on evaluating NOA at school sites.

In addition, HSC Section 19827.5 prohibits the issuance of demolition permits by local and State agencies for any building or structure that has not submitted all required asbestos notifications to USEPA, pursuant to Part 61 of CFR Title 40.

Cal OSHA Regulations. Cal/OSHA sets forth regulations for the disturbance of ACMs including removal operations for all types of ACMs. The following regulations apply to the removal and disposal of ACM: CFR Title 40, Part 61, Subpart M (Asbestos National Emission Standards for Hazardous Air Pollutants [NESHAP]); CCR Title 8, Sections 1529 and 5208. Cal/OSHA requires contractors and employers that remove ACMs to be registered and consultants and technicians who conduct sampling and/or removal to be certified. In addition, the agency has developed standards for general industry and the construction industry hazardous waste operations and emergency response. Cal/OSHA ensures that employers must have controls to reduce and monitor exposure levels of hazardous materials, an informational program describing any exposure during operations and the inspection of drums and containers prior to removal or opening. Decontamination procedures and emergency response plans must be in place before employees begin working in hazardous waste operations.

CCR Title 8 Section 1529. This section of the CCR regulates asbestos exposure for work identified in Section 1502, including demolition or salvage of structures where asbestos is present; removal or encapsulation of materials containing asbestos; construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos, installation of products containing asbestos; asbestos spill/emergency cleanup; transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed; and excavation that may involve exposure to asbestos as a natural constituent which is not related to asbestos mining and milling activities.

LEAD REGULATIONS

Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, and in soils around buildings and structures painted with LBP. Old peeling paint can contaminate near surface soil, and exposure to residual lead can have adverse health effects, especially in children. The USEPA banned the use of lead in paint in 1971 (Public law 91-695). The U.S. Consumer Product Safety Commission followed with implementing regulations, effective in 1978 (42 FR 44199 and 16 CFR 1303). Cal/OSHA's Lead in Construction Standard is contained in CCR Title 8, Section 1532.1. The regulations address all of the following areas: permissible exposure limits (PELs); exposure assessment; compliance methods; respiratory protection; protective clothing and equipment; housekeeping; medical surveillance; medical removal protection; employee information, training, and certification; signage; record keeping; monitoring; and agency notification. The following regulations apply to the removal and disposal of LBP: Title IV, Toxic Substances Control Act, Sections 402, 403, and 404; and Title 8 CCR Section 1532.1. In addition, the California Department of Public Health (CDPH) requires that LBP removal actions prepare and submit CDPH Form 8551: Abatement of Lead Hazards Notification and CDPH Form 8552: Lead Hazard Evaluation Report to the CDPH.

CCR Title 8 Section 1532.1. This section of the CCR applies to all construction work where employees could be occupationally exposed to lead, including demolition or salvage of structures where lead or materials containing lead are present; removal or encapsulation of materials containing lead; new construction, alteration, repair, or renovation of structures, substrates, or portions thereof, that contain lead or materials containing lead; installation of products containing lead; lead contamination/emergency clean-up; transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed; and maintenance operations associated with construction activities. This section sets a maximum

exposure limit; requires an assessment to determine whether employees may be exposed to lead; requires employees to create a compliance program to ensure that employee exposure to lead are at or below the permissible exposure limit to the extent feasible; and requires that employees with exposure to lead are provided with respiratory protection, protective work clothing and equipment.

Other state laws that address lead include:

- Hazardous Waste Control Law
- Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
- Carpenter-Presley-Tanner Hazardous Substances Account Act
- Hazardous Waste Management Planning and Facility Siting (Tanner Act)
- Hazardous Materials Release Response Plan and Inventory Law of 1985 (Business Plan Act)

POLYCHLORINATED BIPHENYLS

PCBs are mixtures of 200-plus individual chlorinated compounds (known as congeners) (DTSC 2023d). PCBs were used in many applications such as coolants and lubricants in transformers, capacitors, and other electrical equipment. The manufacture of PCBs ended in the U.S. in the late 1970s because they can cause harmful effects to human health and the environment. PCBs can be found in sources such as electrical transformers, fluorescent light ballasts and electrical devices with PCB capacitors, hydraulic oils, and building materials. PCBs are toxic, highly persistent in the environment, and bioaccumulate. There are no known natural sources of PCBs.

The USEPA prohibited the use of PCBs in the majority of new electrical equipment and fluorescent light ballasts starting in 1979 and initiated a phase-out for much of the existing PCB containing equipment (USEPA 2021). The inclusion of PCBs in electrical equipment and the handling of those PCBs are regulated by the provisions of the Toxic Substances Control Act, 15 USC Section 2601 et seq. (TSCA). Relevant regulations include labeling and periodic inspection requirements for certain types of PCB-containing equipment and outline highly specific safety procedures for their disposal. The State of California likewise regulates PCB-laden electrical equipment and materials contaminated above a certain threshold as hazardous waste; these regulations require that such materials be treated, transported, and disposed of accordingly. At lower concentrations for non-liquids, the RWQCB may exercise discretion over the classification of such wastes. The following regulations apply to the removal and disposal of PCBs: RCRA: 4 CFR 761; Toxic Substances Control Act: USC Title 15, Section 2695; and 22 CCR Section 66261.24.

MERCURY

Mercury may be present in mercury switches and compact fluorescent light bulbs (CFLs) and other tubes (DTSC 2005, 2010). A mercury switch is an electrical switch that opens and closes a circuit when a small amount of the liquid metal mercury connects metal electrodes to close the circuit. Since mercury is a toxic heavy metal, devices containing mercury switches must be treated as hazardous waste for disposal. Because of current regulations, most modern applications have eliminated mercury in switches. In the United States, the USEPA regulates the disposition and release of mercury. Individual states and localities may enact further regulations on the use or disposition of mercury. The following regulations apply to the removal and disposal of mercury switches: 22 CCR Sections 66262.11, 66273 et seq., and 67426.1 through 67428.1.

UNIVERSAL WASTE

Universal waste is hazardous waste that has less stringent requirements for management and disposal (DTSC 2010). Common examples of universal waste include televisions, computers, computer monitors, batteries, and fluorescent lamps. Universal wastes are hazardous upon disposal but pose a lower risk to people and the environment than other hazardous wastes. State and federal regulations identify which unwanted products are universal wastes and provide simple rules for handling and recycling of them. Universal waste must be disposed of in accordance with the DTSC Universal Waste Rule. These regulations are found in the CCR, Title 22, Division 4.5, Chapter 23. Universal wastes, including those that contain mercury, must either be sent directly to an authorized recycling facility or to a universal waste consolidator for shipment to an authorized recycling facility. If the wastes are not to be recycled, then the waste must be managed as hazardous waste rather than as universal waste. This includes notifying DTSC, using a manifest and a registered hazardous waste hauler, complying with shorter accumulation times, and shipping only to an authorized hazardous waste disposal facility.

CALIFORNIA EDUCATION CODE 17213(B)

The California Education Code 17213(b) has minimum standards to minimize the potential for hazardous emissions within 0.25 miles of a school site:

- The property line of the school site, even if it is operated pursuant to a joint use agreement, shall be sited as specified distances from the edge of respective power line easements:
 - 1,100 feet for 50 to 133 kV line
 - 2,150 feet for 220 to 230 kV line
 - 3,350 feet for 500 to 550 kV line
- If the proposed site is within 1,500 feet of a railroad track easement, a safety study shall be done by a competent professional trained in assessing cargo manifests, frequency, speed, and schedule of railroad traffic, grade, curves, type and condition of track need for sound or safety barriers, need for pedestrian and vehicle safeguards at railroad crossings, presence of high pressure gas lines near the tracks that could rupture in the event of a derailment, preparation of an evacuation plan. In addition to the analysis, possible and reasonable mitigation measures must be identified.
- The site shall not be located near an above-ground water or fuel storage tank or within 1,500 feet of the easement of an above ground or underground pipeline that can pose a safety hazard as determined by a risk analysis study, conducted by a competent professional, which may include certification from a local public utility commission.
- Existing or proposed zoning of the surrounding properties shall be compatible with schools in that it would not pose a potential health or safety risk to students or staff in accordance with Education Code Section 17213 and Government Code Section 65402 and available studies of traffic surrounding the site.
- The district is required to consider environmental factor of light, wind, noise, aesthetics, and air pollution in its site selection process.
- If the proposed site is on or within 2,000 feet of a significant disposal of hazardous waste, the school district shall contact the Department of Toxic Substance Control for a determination of whether the property should be considered a Hazardous Waste Property or Border Zone Property.

CALIFORNIA ACCIDENTAL RELEASE PREVENTION PROGRAM

The CalARP Program (CCR Title 19, Division 2, Chapter 4.5) was implemented on January 1, 1997, and replaced the California Risk Management and Prevention Program (RMPP). The CalARP program encompasses both the federal “Risk Management Program,” established in the CFR Title 40, Part 68, and the State of California program, in accordance with the CCR Title 19, Division 2, Chapter 4.5.

The main objective of the CalARP program is to prevent accidental releases of those substances determined to potentially pose the greatest risk of immediate harm to the public and the environment, and to minimize the consequences if releases do occur. These substances are called regulated substances and include both flammable and toxic hazardous materials listed on the Federal Regulated Substances for Accidental Release Prevention and on the State of California Regulated Substances lists. Businesses that handle regulated substances in industrial processes above threshold quantity levels are subject to CalARP program requirements.

The CalARP program requires businesses to have planning activities that are intended to minimize the possibility of an accidental release by encouraging engineering and administrative controls. It is further intended to mitigate the consequences of an accidental release, by requiring owners or operators of facilities to develop and implement an accident prevention program.

CALIFORNIA FIRE CODE

The CFC is Chapter 9 of CCR Title 24. It is the primary means for authorizing and enforcing procedures and mechanisms to ensure the safe handling and storage of any substance that may pose a threat to public health and safety. The CFC regulates the use, handling, and storage requirements for hazardous materials at fixed facilities. The CFC and the California Building Code use a hazard classification system to determine what protective measures are required to protect fire and life safety. These measures may include construction standards, separations from property lines, and specialized equipment. To ensure that these safety measures are met, the CFC employs a permit system based on hazard classification. The CFC is updated every three years.

2017 STATE OF CALIFORNIA EMERGENCY PLAN

The 2017 State of California Emergency Plan, also referred to as the State Emergency Plan (SEP), addresses the state’s response to extraordinary emergency situations associated with natural disasters or human-caused emergencies. The California Emergency Services Act provides the basic authorities for conducting emergency operations following the proclamation of emergencies by appropriate local officials and/or the Governor. The provisions of this act are further reflected and expanded upon by local emergency ordinances. In accordance with this act, the SEP describes the methods for carrying out emergency operations, the process for rendering mutual aid, the emergency services of governmental agencies, how resources are mobilized, how the public will be informed and the process to ensure continuity of government during an emergency or disaster. The SEP emphasizes mitigation programs to reduce the vulnerabilities to disaster and preparedness activities to ensure the capabilities and resources are available for an effective response. To assist communities and governments to recover from the disaster, the SEP outlines programs that establish a consistent, statewide framework to enable state, local, tribal governments, federal government, and the private sector to work together to mitigate, prepare for, respond to and recover from the effects of emergencies regardless of cause, size, location, or complexity.

EMERGENCY RESPONSE PLAN/EMERGENCY EVACUATION PLAN

The state is required to adopt a federally approved State Multi-Hazard Mitigation Plan to be eligible for certain disaster assistance and mitigation funding (Disaster Mitigation Act of 2000; Public Law 106-390 and 44 CFR Part 201). California updated its State of California Multi-Hazard Mitigation Plan in 2018 (Cal OES 2018). The State Multi-Hazard Mitigation Plan is an evaluation of the hazards California faces and the strategies, goals, and activities the state will pursue to address these hazards. It:

- Documents statewide hazard mitigation planning in California,
- Describes strategies and priorities for future mitigation activities,
- Facilitates the integration of local and tribal hazard mitigation planning activities into statewide efforts, and
- Meets state and federal statutory and regulatory requirements.

All six SCAG counties and a number of cities within the SCAG region have completed Hazard Mitigation Plans.

2018 STATE HAZARD MITIGATION PLAN (SHMP)

Approved by FEMA in September 2018, as an Enhanced State Mitigation Plan, the 2018 SHMP update continues to build upon California's commitment to reduce or eliminate the impacts of disasters caused by natural, technological, accidental, and adversarial/human-caused hazards, and further identifies and documents progress made in hazard mitigation efforts, new or revised state and federal statutes and regulations, and emerging hazard conditions and risks that affect the State of California. Resilience depends on the whole community and is a shared responsibility for all levels of government, private and nonprofit sectors, and individuals.

CALIFORNIA VEHICLE CODE SECTION 21806

California state law requires that drivers yield the right-of-way to emergency vehicles and remain stopped until the emergency vehicles have passed.

LOCAL

COUNTY GENERAL PLANS AND OTHER COUNTYWIDE PLANNING

In addition to federal and state requirements, general plans and municipal codes of counties and cities in the SCAG region may include safety elements that goals and policies related protecting people and property from risks from hazards and hazardous materials.

IMPERIAL COUNTY GENERAL PLAN

The Land Use Planning and Public Safety and Emergency Preparedness Elements of the Imperial County General Plan have established goals related to protection of public health and safety for consideration in the land use planning process. The specified goals and objectives are intended to minimize potential hazards to public health and safety and prevent the loss of life and damage to properties and rely heavily on ensuring conformance with established applicable state codes. The General Plan has specific goals related protecting the public from exposure to hazardous materials and wastes, by discouraging the transport of hazardous materials/waste near or through residential areas and critical facilities, measures to minimize the possibility of hazardous materials/waste spills, land use planning policies to discourage incompatible development adjacent to sites and facilities for the

production, storage, disposal, and transport of hazardous materials/waste as identified in the County General Plan and other regulations, and an established objective of adopting and ordinances, policies, and guidelines that assure the safety of Imperial County ground and surface waters from toxic or hazardous materials and wastes.

LOS ANGELES COUNTY GENERAL PLAN

The Safety Element of the Los Angeles County General Plan 2035 Update, in conjunction with the All Hazard Mitigation Plan prepared by the Chief Executive Office, Office of Emergency Management (CEO OEM), sets strategies for natural and man-made hazards in Los Angeles County. The All-Hazard Mitigation Plan, which has been approved by FEMA and the California Emergency Management Agency (CalEMA), includes a compilation of known and projected hazards in Los Angeles County.

LOS ANGELES COUNTY OPERATIONAL AREA EMERGENCY RESPONSE PLAN (ERP)

The County of Los Angeles developed the ERP to ensure the most effective allocation of resources for the maximum benefit and protection of the public in time of emergency. The ERP does not address normal day-to-day emergencies or the well-established and routine procedures used in coping with them. Instead, the operational concepts reflected in this plan focus on potential large-scale disasters like extraordinary emergency situations associated with natural and man-made disasters and technological incidents which can generate unique situations requiring an unusual or extraordinary emergency response. The purpose of the plan is to incorporate and coordinate all the facilities and personnel of County government, along with the jurisdictional resources of the cities and special districts within the County, into an efficient Operational Area organization capable of responding to any emergency using a SEMS, mutual aid, and other appropriate response procedures. The goal of the plan is to take effective life-safety measures and reduce property loss, provide for the rapid resumption of impacted businesses and community services, and provide accurate documentation and records required for cost-recovery.

ORANGE COUNTY GENERAL PLAN

The Safety Element of the Orange County General Plan provides for the protection of people and property from risks associated with hazards and hazardous materials through the implementation of mitigation measures as outlined in the California Emergency Plan, the California Master Mutual Aid Agreement, the Orange County Emergency Plan, the Orange County Operational Area Plan, S.O.N.G.S. Plan, County of Orange and Orange County Fire Authority Hazard Mitigation Plan, and other emergency management plans. The Safety Element of the Orange County General Plan focuses primarily upon the County's planned response to extraordinary emergency situations associated with natural disasters, technological incidents, intentional acts of terrorism and nuclear protection operations. To reduce the County's susceptibility and vulnerability to extraordinary emergency situations, the Safety Element recommends continued emphasis is placed on several coordinated efforts:

- Mitigation
- Emergency planning
- Training of full-time, auxiliary, and reserve personnel
- Public awareness and education; and assuring the adequacy and availability of sufficient resources to cope with such emergencies

In November 2015, the Board of Supervisors adopted a new County of Orange and Orange County Fire Authority Hazard Mitigation Plan (HMP) in compliance with federal and state regulations.

RIVERSIDE COUNTY GENERAL PLAN

The Safety Element of the Riverside County General Plan contains specific goals to minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment and disposal of hazardous materials and hazardous wastes. Additionally specific goals are identified to locate potentially hazardous facilities and operations in areas that would not expose the public to a significant risk of injury, loss of life, or property damage. The plan identifies nine hazardous materials policies and 32 policies related to disaster preparedness, critical facilities and lifelines, disaster recovery plans, and public information and outreach.

SAN BERNARDINO COUNTY GENERAL PLAN

The San Bernardino County General Plan contains an entire element regarding household hazardous waste, which includes reduction implementation programs. The Safety Element was amended in 2014 with goals such as the County providing a Hazard Mitigation Plan which will become part of the Safety Element.

VENTURA COUNTY GENERAL PLAN

The Safety Element of the Ventura County General Plan contains specific goals to minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from the use, transport, treatment and disposal of hazardous materials and hazardous wastes. Additionally specific goals are identified to locate potentially hazardous facilities and operations in areas that would not expose the public to a significant risk of injury, loss of life, or property damage. The plan identifies five policies and 13 programs related to the management of hazards and hazardous materials.

CITY GENERAL PLANS

The SCAG region spans six counties and 191 cities, each of which has a general plan containing policies related to hazards and hazardous materials. Additional plans and ordinances at the master plan level, city-level, and specific plan level may also apply within the SCAG region, such as the City of Los Angeles Local Hazard Mitigation Plan. The Local Hazard Mitigation Plan meets the planning requirements of FEMA's Community Rating System. Furthermore, fire departments and other agencies in the SCAG region have a variety of local laws that regulate reporting, storage, handling, and transporting hazardous substances and materials. See Section 3.20, *Wildfire*, for an additional discussion on hazards in relation to wildland fires.

EMERGENCY EVACUATION/DISASTER ROUTES

Some counties and cities have identified disaster routes as well as other resources to facilitate response to large-scale emergencies including large-scale evacuations. For example, the County of Los Angeles has designated disaster routes (County of Los Angeles County Department of Public Works 2023). Note that disaster routes are not necessarily evacuation routes. Although an emergency may warrant a road be used as both a disaster and evacuation route, they are completely different. An evacuation route is used to move the affected population out of an impacted area.

LOCAL EMERGENCY RESPONDER PLANS

Some jurisdictions emergency responders have comprehensive plans that address emergency response. The City of Los Angeles is one such jurisdiction which has a particularly high call volume. The LAFD is the nation's second

busiest provider of Emergency Medical Services (EMS); more than 85% of LAFD's daily responses are related to EMS. The types of medical response calls received range from minor cuts to trauma and heart attacks. The call volume for structure and brush fires is less frequent. Applicable portions of LAFD's Strategic Plan that apply to emergency response planning are summarized as follows:

LAFD Strategic Plan 2023–2026. The Strategic Plan focuses on seven key goals and corresponding strategies, tactics, and benchmarks for goal achievement. The primary goal that applies to land use planning and emergency response is Goal 1) delivering exceptional public safety and emergency service. Some of the key strategies associated with this goal include:

Strategy 1.1: Ensure optimal emergency resource deployment to meet the evolving needs of the City.

Strategy 1.2: Elevate the delivery of Emergency Medical Services (EMS) to ensure all patients receive the highest quality of care possible.

Strategy 1.3: Strengthen the Department's fire suppression and rescue capabilities.

Strategy 1.4: Expand and enhance the Department's Special Operations capabilities (Disaster Response & Rescue, Hazardous Materials, Swiftwater, Wildland Fire Management, Marine Operations).

Strategy 1.5: Partner with Federal, State, and Local Agencies to ensure the delivery of exceptional public safety and emergency services to People Experiencing Homelessness (PEH).

Strategy 1.6: Provide an optimal state of readiness with respect to homeland security and terrorism preparedness.

Strategy 1.7: Reduce life-safety risk and improve customer experiences through robust and innovative fire and prevention services.

Strategy 1.8: Maintain a highly capable, mission-ready fleet and staffing the Department's Air Operations Section.

Strategy 1.9: Enhance the quality of life in Los Angeles by supporting large sporting, entertainment, and cultural events.

3.9.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to hazards and hazardous materials if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;

- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area; or
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires (this criterion is addressed in Section 3.20, *Wildfire*, Impact WF-2).

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis of hazards and hazardous materials considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

The potential impacts related to hazards and hazardous materials from Plan implementation is based on a review of literature and database information (e.g., SWRCB's GeoTracker and DTSC EnviroStor websites). The frequency and location of hazardous material shipments are an indicator of potential risk. The impact of hazardous materials transportation throughout the SCAG region can be assessed by examining the Plan's effect on shipments of hazardous materials. Projects implemented as a result of the Plan would be regulated by the various laws, regulations, and policies summarized above in Section 3.9.2, *Regulatory Framework*. Compliance by projects implemented under the Plan with applicable federal, state, and local laws and regulations is assumed in this analysis and federal, state, and local jurisdictions would be expected to continue to enforce applicable requirements to the extent that they do so now. Note that compliance with hazards and hazardous materials regulations are generally a condition of permit approval.

The methodology for determining the significance of hazardous material impacts compares the existing conditions (2022) to the future 2050 conditions under the Plan, as required in CEQA Section 15126.2(a). Implementation of the Plan has the potential to affect the transportation and handling of hazardous materials in the SCAG region by improving and increasing transportation routes in proximity to sensitive receptors such as educational and residential uses.

In 2015, the California Supreme Court in *CBIA v. BAAQMD* held that CEQA does not require a lead agency to consider the impacts of the existing environment on the future residents or users of a project. However, if a project exacerbates a condition in the existing environment, the lead agency is required to analyze the impact of that exacerbated condition on future residents and users of a project, as well as other impacted individuals. The

following discussion focuses on a programmatic regional evaluation on the risk of exposure to hazards from transportation projects and implementation of policies and strategies identified in the Plan.¹

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan. See CEQA Guidelines Section 15126.4(a)(1)(B). As discussed in Section 3.0, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT HAZ-1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

IMPACT HAZ-2 Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Significant and Unavoidable Impact – Mitigation Required

As discussed in Section 3.0, *Introduction to the Analysis*, due to the similarities of the topic areas, Impacts HAZ-1 and HAZ-2 are addressed together. Implementation of Connect SoCal 2024 may create significant hazards to the public or the environment through the transportation, use, and/or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment, constituting significant impacts. Goods movement activities can facilitate the movement of hazardous materials throughout the transportation network. Proposed freight rail enhancements and other goods movement capacity enhancements identified in the Plan could result in increased or new transport of hazardous materials or wastes. In addition, construction and maintenance of projects could result in use of equipment that contain or use routine hazardous materials [e.g., diesel fuels, alternative fuels such as liquefied natural gas (LNG), lithium-ion batteries, paint and coatings, and cleaning agents such as solvents and ammonia], and/or the transportation of excavated soil and/or groundwater containing contaminants from previously contaminated areas. The fraction of containers that include hazardous materials is not known, but assuming that it remains constant, transport of hazardous materials would be expected to triple along with other container traffic. In addition to container traffic, hazardous materials are transported via company trucks (for example gas companies transport gasoline, diesel and other flammable substances) and various industrial users transport materials for their businesses (raw materials and waste products).

¹ Note that as discussed in Section 3.15.1, *Public Services*, under the schools discussion, CEQA review of school construction generally does require an evaluation of the effects of existing air quality exposure on pupils, and to the extent the health risk is unacceptable, the school would not be built. CEQA also provides limited protection and requires analysis of impacts of the existing environment on certain housing development projects exercising exemptions under PRC Section 21096.

Reducing conflicts between goods movement and people movement is critical to realize a safer system for users. In 2019, there were approximately 4,140 truck-involved accidents in the SCAG region, an increase of 35.9 percent versus 2012, and more than 180 of them resulted in fatalities (UC Berkeley 2023). A greater separation of passenger and goods movement is envisioned in the Plan to make the system safer for all users.

The construction, maintenance, and operation of projects implemented as a result of the Plan could involve the use of hazardous materials such as lithium-ion batteries in battery-electric material delivery trucks and construction equipment, fuels (e.g., diesel and alternative fuels), oils and lubricants, solvents and cleaning solutions (e.g., ammonia), paints and thinners, cements and adhesives, degreasers, cement and concrete, and asphalt mixtures, which are all commonly used in construction. Additionally, increased transport and handling of hazardous materials particularly by goods movement facilities could result in increased risk of accidental releases reaching neighborhoods and communities adjacent to the transportation facilities.

To accommodate the region's new growth (over 2 million additional people by 2050), the Plan encourages growth adjacent to transit and transportation facilities in order to reduce trips and trip lengths. However, with increasing growth adjacent to such transportation facilities, there would be greater potential risk for exposure of people and property to hazardous materials from the routine transport, use, and disposal of hazardous materials and foreseeable upset and accident conditions involving the release of hazardous materials into the environment. While projects implemented under the Plan would be required to comply with all existing applicable regulations (discussed above), due to the volume of projects and large amount of growth, at a regional level incremental releases could accumulate and accidents could occur. As such, impacts are considered significant and mitigation measures are required.

CONSTRUCTION

DEMOLITION OF EXISTING STRUCTURES

Implementation of the Plan may require demolition and removal of existing structures. Existing structures that predate the late 1970s regulatory bans on the use of hazardous building materials may contain such materials (e.g., ACM, LBP, PCBs, and mercury). Demolition of existing structures could expose construction workers and the environment to hazardous building materials if not managed in accordance with applicable regulations.

As described in Section 3.9.2, *Regulatory Framework*, the handling, storage, removal, transportation, and disposal of hazardous building materials would be conducted in accordance with existing federal, state, and local regulations. Demolition activities that may disturb or require the removal of hazardous building materials are required to be inspected and/or tested for the presence of hazardous building materials. If hazardous building materials are present at concentrations above regulatory action levels, they must be managed and disposed of in accordance with the existing laws and regulations described in Section 3.9.2, *Regulatory Framework*. Required compliance with laws and regulations that govern the routine transport, use, handling, and disposal of hazardous building materials would reduce the potential to create hazardous conditions due to the routine use or accidental release of hazardous materials. However, given the size of the SCAG region and variations in site conditions, size of projects and regulatory enforcement, it is possible that incidental impacts associated with releases of hazardous materials during construction activities could occur frequently enough that they would collectively constitute a significant adverse effect at a regional scale. Accordingly, despite compliance with applicable regulatory requirements for most future projects, impacts are considered significant and mitigation measures are required.

EXCAVATION

The excavation of soil, dewatering of excavations (if needed), and construction of new structures on sites known to have past or current contamination is analyzed under Impact HAZ-4 below.

As summarized in Section 3.10, *Hydrology and Water Quality*, Subsection 3.10.2, *Regulatory Framework*, NPDES Construction General Permit, for projects that disturb one or more acres, construction contractors would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) for construction activities in compliance with the Permit. The SWPPP would list the hazardous materials (including petroleum products) proposed for use during construction; describe spill prevention measures, equipment inspections, equipment and fuel storage; establish protocols for responding immediately to spills; and describe BMPs for controlling site runoff. The management of stormwater during construction in accordance with the State Construction General Permit during construction would control runoff, and the migration of sediment and other pollutants from project sites under most circumstances. However, as noted above for construction activities, there could be limited instances in which certain smaller projects are not subject to stormwater permit requirements, thereby increasing the potential for adverse erosion and siltation to occur during storm events. Such circumstances are considered reasonably foreseeable given the size of the SCAG region and variation in site conditions, project sizes and regulatory enforcement, and thus could occur frequently enough that they would collectively constitute a significant adverse effect as a result of hazardous materials leaching in to groundwater.

CONSTRUCTION OF NEW STRUCTURES

During the construction phase for projects implemented as a result of the Plan, construction equipment and materials would include use of fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures. The routine use or an accidental spill of hazardous materials could result in inadvertent releases or incremental small releases over time and/or accidents, which could adversely affect construction workers, the public, and the environment.

Construction activities would be required to comply with numerous hazardous materials regulations described in in Section 3.9.2, *Regulatory Framework*, designed to ensure that hazardous materials would be transported, used, stored, and disposed of in a safe manner to protect worker and public safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment. Contractors would be required to prepare and implement HMBPs that would require that hazardous materials used for construction would be used properly and stored in appropriate containers with secondary containment to contain a potential release. The CFC would also require measures for the safe storage and handling of hazardous materials. In addition, the transportation of hazardous materials would be regulated by the USDOT, Caltrans, and the CHP. Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications designed to minimize the risk of accidental release. In the event of an accidental spill that could release hazardous materials at a project site, a coordinated response would occur at the federal, state, and local levels, including, but not limited to city and county fire departments, to respond to and assess the situation, as needed.

The required compliance with the numerous laws and regulations that govern the transportation, use, handling, and disposal of hazardous materials would generally limit the potential for creation of hazardous conditions due to the use or accidental release of hazardous materials. Nonetheless, as discussed above, comprehensive and complete compliance with applicable laws and regulations cannot be guaranteed given the size and complexity of the region and potential for incidental occurrences to collectively constitute a significant impact at a regional scale. As such, impacts are considered significant and mitigation measures are required.

OPERATION

Implementation of the Plan could result in the routine transport, use, storage and disposal of various chemicals, some of which may be hazardous. Routine use or accidental spills of hazardous materials could adversely affect workers, the public, and the environment.

As required by the State's HMBP program, the commercial, industrial, and residential property management companies that use reportable quantities of hazardous materials would be required to prepare and submit HMBPs to the local CUPAs before beginning to operate any facility that would manage hazardous materials subject to the requirement. HMBPs include information about the handling and storage of hazardous materials, including site layout, storage in appropriate containers with secondary containment to contain a potential release, and emergency response and notification procedures in the event of a spill or release. In addition, the HMBPs require annual employee health and safety training.

The HMBPs must be approved by the CUPA before the start of operations, and the various facilities would be subject to periodic compliance inspections. The HMBPs would also provide local jurisdictions with the information needed to plan appropriately for a chemical release, fire, or other incident, reducing the potential for an accidental release to harm the health of workers or the public or substantially degrade the environment. All hazardous materials must be stored and handled according to manufacturers' directions and federal, state, and local regulations.

The CFC would also require measures for the safe storage and handling of hazardous materials. As a part of the CUPA program, all hazardous materials must be used, stored, transported, and disposed of in compliance with the federal, State, and local code requirements. Transportation and disposal of wastes, such as spent cleaning solutions, would also be subject to regulations for safe handling, transportation, and disposal. These regulations would include appropriate containerization and labeling, transportation by licensed hazardous materials haulers, and disposal at licensed facilities permitted to accept the waste.

In addition, individual projects would be required to comply with the development standards of regional municipal stormwater permits for municipal separate storm sewer systems, as discussed in Section 3.10, *Hydrology and Water Quality*, Subsection 3.10.2, *Regulatory Framework*. Compliance with these regulations would reduce hazardous materials in runoff from new development and redevelopment through BMPs and Low Impact Development/post-construction standards.

Residential and commercial projects implemented as a result of the Plan, would use and store small quantities of chemicals typical in these land uses, such as cleaning solutions, paints, and thinners. A few of the chemicals would be considered hazardous materials (e.g., bleach) and the anticipated volumes would be small (i.e., less than 5 gallons).

The required compliance with the numerous laws and regulations discussed above that govern the transportation, use, storage, handling, and disposal of hazardous materials would, for the most part, limit the potential for projects to create hazardous conditions from the use or accidental release of hazardous materials. As noted above for construction activities, however, there could be limited instances in which certain small projects are not subject to regulatory requirements, thereby increasing the potential for releases of hazardous materials and wastes into the environment. Such circumstances are considered reasonably foreseeable given the size of the SCAG region and variation in site conditions, project size, and regulatory enforcement, and thus could occur frequently enough that they would collectively constitute a significant adverse effect at a regional scale. Accordingly, despite compliance

with applicable regulatory requirements for projects implemented as a result of the Plan, incremental and/or larger accidental releases of hazardous materials could occur as a result of the routine transport, use, or disposal of hazardous materials. As such, impacts are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GEN-1.

SMM-HAZ-1 SCAG shall work with the Caltrans and the California Highway Patrol to continue to reduce risks associated with the transport of hazardous materials in the SCAG region, through its Consultation role assisting in the development of routes designated for hazardous materials, specifically related to radioactive materials.

PROJECT-LEVEL MITIGATION MEASURES

PMM-HAZ-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to the routine transport, use, or disposal of hazardous materials and hazardous materials releases, as applicable and feasible. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a) Reduce train speeds when train cars contain hazardous material to 40 miles per hour when passing through urbanized areas of any size.
- b) Limit storage of crude oil tank cars in urbanized areas of any size and provide appropriate security in storage yards for all shipments.
- c) Notify in advance county and city emergency operations offices of all crude oil rail transports, including a contact number that can provide real-time information in the event of an oil train derailment or accident.
- d) Report quarterly hazardous commodity flow information, including classification and characterization of materials being transported, to all first response agencies (49 Code Fed. Regs. 15.5) along the mainline rail routes used by trains carrying crude oil identified.
- e) Fund training and outfitting emergency response crews that includes the cost of backfilling personnel while in training.
- f) Undertake annual emergency responses scenario/field based training including Emergency Operations Center Training activations with local emergency response agencies.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), and compliance with existing laws and regulations would reduce impacts but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible.

While the mitigation measures will reduce the impacts related to the routine transport, use, or disposal of hazardous materials or the release of hazardous materials into the environment, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT HAZ-3 **Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.**

Significant and Unavoidable Impact – Mitigation Required

DEMOLITION, EXCAVATION, AND CONSTRUCTION

As discussed in Section 3.9.2, *Environmental Setting*, in the *Proximity to Schools* subsection, there are over 6,000 schools located within the SCAG area. As discussed above in Impacts HAZ-1/HAZ-2, demolition, excavation, and construction activities for projects implemented as a result of the Plan would include the transportation, handling, use, and offsite disposal of hazardous materials which could result in accidental spills. Construction of projects would involve the use of hazardous substances in the form of fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures, which are all commonly used in construction. The demolition of existing structures may encounter hazardous building materials (e.g., ACM LBP, PCBs, and/or mercury).

As discussed above in Impacts HAZ-1/HAZ-2, demolition, excavation, and construction activities would be required to comply with applicable hazardous materials regulations. These regulations are designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment, including the transportation of hazardous materials and hazardous waste on public streets. As previously discussed, contractors would be required to prepare and implement HMBPs that would require that hazardous materials used for construction would be used properly and stored in appropriate containers with secondary containment to contain a potential release. Under typical conditions, all materials would be used, stored, and disposed of in accordance with applicable laws and regulations and manufacturers' instructions. Notwithstanding anticipated compliance with applicable regulatory requirements for construction activities near schools in the region, the potential exists for incidental releases of hazardous materials that could adversely affect school facilities given the number of anticipated construction projects expected to occur in the region through the 2050 Plan horizon. Such incidental releases, when considered collectively at a regional scale, are considered significant impact and mitigation measures are required.

OPERATION

Implementation of the Plan could result in the routine transport, use, storage, and disposal of various chemicals, some of which may be hazardous and used in large volumes. Routine use or an accidental spill of a hazardous materials within one-quarter mile of a school could adversely affect children, school staff, and the public.

See discussion above under Impacts HAZ-1/HAZ-2 regarding potential for release of hazardous materials into the environment; these impacts could occur in the vicinity of schools.

The required compliance with the numerous laws and regulations discussed above that govern the transportation, use, storage, handling, and disposal of hazardous materials would limit the potential for projects to create hazardous conditions in the vicinity of schools. However, as discussed above in Impacts HAZ-1/HAZ-2 there is a reasonably foreseeable potential for incidental releases of hazardous materials during long-term operation of projects implemented as a result of the Plan, including those in proximity to schools. As such, operational impacts are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-HAZ-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-HAZ-1.

PMM-HAZ-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to the release of hazardous materials within 0.25 miles of schools, as applicable and feasible. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a) Where the construction and operation of projects involves the transport of hazardous materials, avoid transport of such materials within 0.25 miles of schools, when school is in session, wherever feasible.
- b) Where it is not feasible to avoid transport of hazardous materials, within 0.25 miles of schools on local streets, provide notifications of the anticipated schedule of transport of such materials.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to hazardous materials emissions or handling near schools, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT HAZ-4 Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.

Significant and Unavoidable Impact – Mitigation Required

Projects implemented as a result of the Plan may be located on a site included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (the Cortese List). The Plan includes transportation system improvements to close critical gaps in the transportation network that currently hinder access to certain parts of the region. Construction related to projects implemented under the Plan could involve construction on or adjacent to sites that are contaminated (buildings and/or soil and/or groundwater) due to past use or disposal of hazardous materials.

Federal, state, and local laws regulate the remediation of these sites, and it is likely that the majority of contaminated sites have been identified or are easily identifiable from existing information. Given the intensity of past use of land, there are a substantial number of contaminated sites on the Cortese List in the SCAG region (see Section 3.9.1, *Environmental Setting*, in the *Hazardous Materials Sites* subsection). In urban as well as rural areas, many projects, both transportation and land use development, would need to address at least the potential to encounter contamination. Because of the large number of contaminated sites and the risk associated with encountering and cleaning up of these sites, this impact could be significant.

Policies, strategies and investments included in the Plan are intended to increase mobility and improve accessibility would potentially influence population distribution, resulting in a potentially significant impact related to disturbance of contaminated sites by new urban development, most of which would be in existing urban areas. Plan policies and strategies generally aim to direct future population growth toward Priority Development Areas (PDAs) many of which are in close proximity to transit. Consequently, the redevelopment and reuse of urban infill lands, some of which are contaminated, is anticipated to become more common as the region grows.

Projects implemented as a result of the Plan to be located on sites which are included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. As such impacts are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-HAZ-1.

PROJECT-LEVEL MITIGATION MEASURES

PMM-HAZ-3 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to projects that are located on a site which is included on the

Cortese List, as applicable and feasible. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a) For any listed sites or sites that have the potential for residual hazardous materials as a result of historic land uses, complete a Phase I Environmental Site Assessment, including a review and consideration of data from all known databases of contaminated sites, during the process of planning, environmental clearance, and construction for projects.
- b) If warranted by the Phase I report, submit to the appropriate agency responsible for hazardous materials/wastes oversight a Phase II Environmental Site Assessment report for the project site. The reports should make recommendations for remedial action, if appropriate, and be signed by a Professional Geologist or Professional Engineer.
- c) Implement the recommendations provided in the Phase II Environmental Site Assessment report, where such a report was determined to be necessary for the construction or operation of the project, for remedial action.
- d) Submit a copy of all applicable documentation required by local, state, and federal environmental regulatory agencies, including but not limited to permit applications, Phase I and II Environmental Site Assessments, human health and ecological risk assessments, remedial action plans, risk management plans, soil management plans, and groundwater management plans.
- e) Conduct soil sampling and chemical analyses of samples, consistent with the protocols established by the USEPA to determine the extent of potential contamination beneath all underground storage tanks, elevator shafts, clarifiers, and subsurface hydraulic lifts when on-site demolition or construction activities would potentially affect a particular development or building.
- f) Consult with the appropriate local, state, and federal environmental regulatory agencies to ensure sufficient minimization of risk to human health and environmental resources, both during and after construction, posed by soil contamination, groundwater contamination (including dewatering effluent), or other surface hazards including, but not limited to, underground storage tanks, fuel distribution lines, waste pits and sumps.
- g) Obtain and submit written evidence of approval for any remedial action if required by a local, state, or federal environmental regulatory agency.
- h) Cease work if soil, groundwater (including dewatering effluent), or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums, or other hazardous materials or wastes are encountered), in the vicinity of the suspect material. Secure the area as necessary and take all appropriate measures to protect human health and the environment, including but not limited to, notification of regulatory agencies and identification of the nature and extent of contamination. Stop work in the areas affected until the measures have been implemented consistent with the guidance of the appropriate regulatory oversight authority.
- i) Soil generated by construction activities should be stockpiled on-site in a secure and safe manner. All contaminated soils determined to be hazardous or non-hazardous waste must be adequately profiled (sampled) prior to acceptable reuse or disposal at an appropriate off-site

facility. Complete sampling and handling and transport procedures for reuse or disposal, in accordance with applicable local, state, and federal laws and policies.

- j) Groundwater (including dewatering effluent) pumped from the subsurface should be contained on-site in a secure and safe manner, prior to treatment and disposal, to ensure environmental and health issues are resolved pursuant to applicable laws and policies. Utilize engineering controls, which include impermeable barriers to prohibit groundwater and vapor intrusion into the building.
- k) As needed and appropriate, prior to issuance of any demolition, grading, or building permit, submit for review and approval by the Lead Agency (or other appropriate government agency) written verification that the appropriate federal, state and/or local oversight authorities, including but not limited to the Regional Water Quality Control Board, have granted all required clearances and confirmed that the all applicable standards, regulations, and conditions have been met for previous contamination at the site.
- l) Develop, train, and implement appropriate worker awareness and protective measures to assure that worker and public exposure is minimized to an acceptable level and to prevent any further environmental contamination as a result of construction.
- m) If asbestos-containing materials (ACM) are found to be present in building materials to be removed, submit specifications signed by a certified asbestos consultant for the removal, encapsulation, or enclosure of the identified ACM in accordance with all applicable laws and regulations, including but not necessarily limited to: California Code of Regulations Title 8; Business and Professions Code; Division 3; California Health and Safety Code Section 25915–25919.7; and other local regulations.
- n) Where projects include the demolitions or modification of buildings constructed prior to 1978, complete an assessment for the potential presence or lack thereof of ACM, LBP, and any other building materials or stored materials classified as hazardous waste by state or federal law.
- o) Where the remediation of LBP has been determined to be required, provide specifications to the appropriate agency, signed by a certified Lead Supervisor, Project Monitor, or Project Designer for the stabilization and/or removal of the identified lead paint in accordance with all applicable laws and regulations, including but not necessarily limited to: California Occupational Safety and Health Administration’s Construction Lead Standard, CCR Title 8 Section 1532.1 and Department of Health Services Regulation 17 CCR Sections 35001–36100, as may be amended. If other materials classified as hazardous waste by state or federal law are present, the project sponsor should submit written confirmation to the appropriate local agency that all state and federal laws and regulations should be followed when profiling, handling, treating, transporting, and/or disposing of such materials.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan’s Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level

mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to listed hazardous materials sites, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT HAZ-5 For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.

Significant and Unavoidable Impact – Mitigation Required

As discussed in Section 3.17, *Transportation*, the SCAG region contains eight commercial airports with scheduled passenger service, seven government/military airfields, and over 30 reliever and general aviation airports. As noted in Section 3.13, *Noise*, regional air passenger transportation is anticipated to grow by an average of 1.9 percent annually from 116.53 million annual passengers (MAP) in 2019 to 182.44 MAP in 2050; regional air cargo transportation is anticipated to grow by an average of 3.2 percent annually, from 3.53 million tons in 2019 to 11.41 million tons in 2050; and regional aircraft operations are anticipated to grow by an average of 0.47 percent annually, from 3.79 million operations in 2019 to 4.76 million operations in 2050. The overall increase in MAP, cargo transportation, and regional aircraft operations would incrementally increase the potential for aircraft-related safety hazards and noise in the region by 2050.

Portions or all of a project's site could be located within an Airport Influence Area as delineated in the airport's Airport Land Use Compatibility Plan (ALUCP). Accordingly, the ALUCP's noise compatibility and height compatibility policies would be applicable to a project located in an Airport Influence Area.

The applicability of ALUCP noise policies is discussed in Section 3.13, *Noise*, which identifies federal, State, and local regulations. These measures would require that structures located within a given airport's relevant noise contour for operation include noise reduction measures (e.g., sound-rated window, wall, and door assemblies) to achieve an acceptable interior noise level in accordance with the ALUCP.

As discussed above in Section 3.9.2, *Regulatory Framework*, airports have established Maximum Structure Heights as defined by the elevation of the Airport's FAR Part 77 imaginary surfaces that extend from each airport at specific heights above grade. The height of structures would be required to not conflict with Maximum Structure Heights and not exceed the FAR Part 77 imaginary airspace surfaces.

Despite anticipated compliance with FAR Part 77, incidental adverse impacts relative to proximity to airports could occur given the size of the region, the number of airports and aircraft operations, and anticipated amount of development near airports that could occur through 2050. As such, impacts are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-NOI-1.

SMM-HAZ-2 SCAG shall continue to collaborate with stakeholders on regional aviation planning issues through the Aviation Technical Advisory Committee (ATAC). The ATAC is a partnership between the airports, transportation agencies and commissions, experts, and other community members within the SCAG region.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-NOI-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), and compliance with existing laws and regulations would reduce impacts but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to airport-related noise and safety hazards, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

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- IMPACT HAZ-6 **Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.**
- IMPACT WF-1 **Substantially impair an adopted emergency response plan or emergency evacuation plan.**
- IMPACT TRA-4 **Result in inadequate emergency access.**

Significant and Unavoidable Impacts – Mitigation Required

As discussed in Section 3.0, *Introduction to the Analysis*, due to the similarities of the topic areas, Impacts HAZ-6, WF-1, and TRA-4 are addressed together.

EMERGENCY RESPONSE PLAN AND EMERGENCY EVACUATION PLANS

Implementation of the Plan has the potential to result in significant impacts to impairing implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan.

Section 3.15, *Public Services*, addresses the potential for the Plan to result in substantial physical impacts associated with the construction of new or physically alter fire stations that would be required to maintain acceptable service ratios and response time for fire protective services. Additionally, the county general plans include Safety Elements that discuss critical infrastructure systems and services to assure adequate circulation, communications, and transportation services. Depending upon the timing, location, and duration of construction activities from projects implemented as a result of the Plan, traffic and/or road closures in grade crossings, arterials, interchanges, and auxiliary lanes, could delay emergency vehicle response times or otherwise disrupt delivery of emergency response services. By closing off one or more lanes of a roadway during project construction, emergency routes could be impaired. The closure of these lanes could potentially cause traffic delays and ultimately prevent access to calls for service.

Section 3.20, *Wildfire*, discusses the county general plans and specific policies or goals within each to minimize the potential for personal risk and property damage from natural or manmade disasters. For example, the Ventura County General Plan includes a policy that requires the County to “ensure that all new discretionary projects are fully evaluated for potential impacts to emergency access.”

Goals, objectives, and policies of the Safety Elements of local general plans and other plans such as the Los Angeles County Operational Area Emergency Response Plan (ERP) provide guidance during unique situations requiring an unusual or extraordinary emergency response. In Los Angeles County, the most populous county in the SCAG region, implementation of the ERP would incorporate and coordinate all the facilities and personnel of County government, along with the jurisdictional resources of the cities and special districts within the County, into an efficient Operational Area organization capable of responding to any emergency using a SEMS, mutual aid, and other appropriate response procedures.

Cities generally provide procedures for coordination among neighboring City agencies and other jurisdictions to provide mutual assistance in the event of an emergency or natural disaster and establishment of disaster recovery programs. Compliance with these policies and plans would minimize potential interference with City and County emergency response plans from construction and operational activities resulting from implementing the Plan.

Larger cities (such as the City of Los Angeles, the largest city in the SCAG region) have an Emergency Operations Organization (EOO). The City of Los Angeles EOO implements the goals and policies of the City’s Safety Element. The Safety Element outlines the scope of the EOO’s on-going efforts to use experiences and new information to improve the City’s hazard program. The City of Los Angeles EOO Master Plan and individual agency Emergency Response Plans set forth procedures for City personnel to follow in the event of an emergency situation stemming from natural disasters, technological incidents and nuclear defense operations, and other unforeseeable disasters or crises. The City of Los Angeles Department of Transportation and LAFD are responsible for ensuring that future development does not impair or physically interfere with an adopted emergency response or evacuation plan.

Plan policies and strategies generally aim to focus new growth in PDAs, which are areas well-served by transit and/or in proximity to employment centers and services, which allows residents to be closer to jobs and recreational and active transportation amenities and opportunities, to increase mobility and accessibility, and to shift growth away from GRRAs such as high value habitat areas. Thus, if the Plan is implemented, population density in urbanized areas would increase which may improve emergency response by eliminating the need to travel to more rural and dispersed locations in the region. Alternatively, large concentrations of people could also cause adverse effects related to implementation of emergency plans because the increased population may overburden adopted evacuation routes and other emergency response resources during emergency conditions. It

is not possible to precisely predict the Plan impacts at the street level, as responses to incidents would be tailored to the specific incident requiring an emergency response.

Projects implemented as a result of the Plan would generally increase mobility and circulation capacity and may therefore have the potential to improve response times for police, fire and emergency service providers. As discussed in Section 3.17, *Transportation*, total hours of vehicle delay would substantially decrease, while the percentage of automobile (non-transit) trips completed within 45 minutes would notably increase by 2050 under the Plan compared to 2019 conditions (see Table 3.17-16, *Total Daily Vehicle Hours of Delay (2019 and 2050)*, and Table 3.17-17, *Percent of PM Work Trips Completed within 45 Minutes*, in Section 3.17). As such, it is anticipated that at a regional scale, overall vehicular congestion would decrease with Plan implementation. However, while overall congestion conditions in the region would improve under the Plan, localized congestion could occur in existing urban centers where the street network is physically constrained and improvements to alleviate acute congestion are not available, which could adversely affect emergency access in denser urban settings, thus resulting in potentially increased emergency response times under these circumstances.

As part of standard development procedures in most cities, plans are submitted for review and approval to ensure all new development has adequate emergency access and escape routes (clearly marked and delineated) in compliance with existing regulations. The Plan would not introduce any features that would preclude implementation of or alter these policies or procedures in any way, or impair implementation of, or physically interfere with the SEP or the ERP (and similar countywide plans).

While the Plan would generally decrease hours of delay at the regional level compared to existing conditions, as noted above, localized congestion in urban areas could occur. However, there is no direct relationship between increased travel delay and emergency response times as California State law requires that drivers yield the right-of-way to emergency vehicles and remain stopped until the emergency vehicles have passed. The impact on response times and overall fire service is not proportional to increasing traffic (see Section 3.17, *Transportation*, of this 2024 PEIR, for additional discussion about how the Plan would affect traffic). Generally, multi-lane arterial roadways allow emergency vehicles to travel at higher speeds and permit other traffic to maneuver out of the path of the emergency vehicle. On congested roadways, multi-lane arterial roadways with continuous center left-turn lanes facilitate emergency access when the through lanes experience delays. Nonetheless, the potential exists for the Plan to interfere with emergency response plans, and thus this impact is considered significant and mitigation is required.

EMERGENCY ACCESS

Natural or manmade disasters can have devastating impacts on the region's livelihood and infrastructure. Transportation infrastructure in particular is critical to preserving life as it allows residents and goods to reach necessary destinations. Compromised infrastructure due to disaster may have impacts beyond the immediate SCAG region. Additionally, failure of multiple infrastructure components may result in a catastrophic impact to the mobility needs of the region.

Numerous agencies participate in the response to incidents and assist with hazard preparedness for individual jurisdictions. Collaboration occurs between many of these agencies. At the federal level, FEMA oversees coordination. However, FEMA defines metropolitan areas and coordination different than the USDOT, limiting SCAG's ability to participate at an agency level.

The relationship between emergency access and traffic and potential impacts associated with emergency access is complex and involves factors such as the following:

- The proximity of emergency provider facilities (primarily police and fire) to those they serve
- The staffing and equipment of emergency provider facilities
- The opportunity for emergency responders to use alternative routes in a given area
- The specific street configuration

Fire departments frequently actively participate in the design of specific roadway changes to ensure adequate fire/emergency access is maintained. As part of building permit reviews, fire departments are frequently required to comment and often indicate project-specific requirements, such as requiring fire retardant landscaping, prohibiting construction in fire hazard areas, requiring design features that reduce fire potential, and developing site-specific emergency response plans. The changing demand for emergency services is complex. For example, with increasing population there may be more density and more construction, though new buildings are constructed in accordance with increasingly stringent building and fire codes making them safer and more resistant to fires, such as requiring fire sprinklers. The population is aging, which may increase demand for service. But it is also feasible that the population may not need additional service, as healthcare and other technologies evolve and are improved. Future factors that could increase efficiencies in response, including improvements in technology and management, such as changes in deployment of equipment and staff and mutual aid agreements.

As discussed in Section 3.9.2, *Regulatory Framework*, communities are mandated under the State Constitution to provide emergency services as, “the protection of the public safety is the first responsibility of local government.” Cal. Const. Art. XIII, Sec. 35, subd. (a)(2). As an example, the City of Los Angeles LAFD Strategic Plan prioritizes:

- Improving response times by utilizing data and metrics to identify gaps in LAFD’s response strategies and exploring response time improvements through dialogue, cognitive inquiry, innovation, and follow-up;
- Delivery of emergency medical services by expanding LAFD EMS response capabilities for special events and addressing periods of high vehicle traffic; and
- Identifying and implementing advanced technologies to support and improve performance metrics, tracking standards, data collection, analysis and reporting procedures (FireStatLA).

The LAFD Strategic Plan also focuses on the development of an even more professional workforce, promotion of a positive work environment to address risk management issues and strengthening community relationships to improve preparedness and enhance resiliency during emergency events. LAFD planning efforts account for congestion as they plan to maintain public safety and emergency services as required.

LAFD has goals for response times that are consistent with the response times stated in the National Fire Protection Association (NFPA) guidelines, including call processing, turnout for EMS and non-EMS calls, and travel. LAFD holds regular FireStat meetings to review response times throughout the City of Los Angeles. These meetings include battalion chiefs and captains from the four Geographic Bureaus (Central, South, Valley, and West) and the Administrative Bureaus in the City and uses the FireStat data to exercise performance management and spot trends to adjust practices, methods or identify other solutions to maintain response times. Metrics are compared between stations and even across shifts or platoons to determine if there is an issue and to continue to always work on reducing all response times to get closer to the NFPA guidelines. If response times are shown to be increasing, battalion chiefs and captains will be tasked with identifying the reason and put in place measures to resolve the

issue. For example, if it is shown that one platoon is regularly achieving a four-minute average response and another platoon at the same station in similar conditions has an average response time of four and a half minutes, the responsible officers for the station will need to determine why one platoon is doing better than another, such as whether one platoon is taking a different route, and resolve the differences to improve the slower numbers. If the factors are external to LAFD, LAFD will coordinate with other City departments, such as LADOT or the City's Information Technology Agency to adjust street light timing, or look for completely new solutions, in order to improve response times. In general, LAFD is constantly monitoring FireStat and utilizing all available resources so that appropriate and feasible response times are being maintained.

Many members of the public focus on response times as operational measures to assess system performance or believe that faster response times mean better patient outcome (Fitch 2005; Blanchard et al 2012). Nationwide, the most widely referenced response time standard for advanced life support (ALS) incidents in urban settings has been for emergency responders to respond within 8 minutes and 59 seconds, when including call processing time, for 90 percent of incidents. The National Fire Protection Association *1710 Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations and Special Operations to the Public by Career Fire Departments* is for an ALS unit to respond within 8 minutes to 90 percent of incidents, without including call processing time (Fitch 2005). This response goal time has been commonly cited since Dr. Mickey Eisenberg published a study in 1979, which concluded that survival from cardiac arrest is maximized if the time between collapse to receiving CPR is four minutes and the time from collapse to receiving definitive care (e.g., defibrillation) is 8 minutes, which has led to a widespread goal of an 8-minute response for ALS units responding to life-threatening emergencies (Blanchard et al. 2012).

While the Plan would incrementally reduce the overall vehicle delay in the region compared to existing conditions, there is not a direct relationship between travel delay and response times as California state law requires drivers to yield the right-of-way to emergency vehicles and even permits emergency vehicles to use opposing lane of travel, the center turn lanes, or bus-only lanes. In some instances, roadway reconfigurations with the implementation of transportation improvements could improve emergency access. For example, a roadway reconfiguration project could improve emergency access where a bus-only lane or a contiguous center left-turn lane is introduced where it did not previously exist. Emergency vehicles are permitted to use bus-only lanes for local access to emergency destinations. People traveling by bicycle are required to pull to the side of the road to yield access to emergency providers regardless of if they are traveling in a bus-only lane or in a standard travel lane. It is more likely that when traveling to an emergency incident, general traffic will be expected to merge into the bus-only lane, permitting the emergency vehicle to pass in the through lane to the left. Emergency responders also routinely use the center left-turn lanes, or even travel in opposing travel lanes if needed. Generally, multi-lane roadways allow emergency vehicles to travel at higher speeds and permit other traffic to maneuver out of the path of the emergency vehicle. The Plan includes policies and strategies to improve emergency response services. These include using ITS to improve response times to and from collision sites and the development of guidance documents to share with EMS responders to increase crash scene safety. As noted above in the Regulatory Framework, ITS can facilitate emergency vehicle access and response times through applications such as automated intersection controls to prioritize emergency vehicles, adaptive traffic management, and even automatic call-out of emergency services following vehicle crashes.

Depending on the timing, location, and duration of construction activities, several of the proposed transportation projects (including grade crossings, arterials, interchanges, and auxiliary lanes) could result in delayed emergency vehicle response times or otherwise disrupt delivery of emergency response services. For example, closing off one or more lanes of a roadway, emergency routes could be impaired. The closure of these lanes could potentially

cause traffic delays and ultimately prevent access to calls for service. Construction of other projects as a result of Plan policies and strategies may also interfere with the use of existing transportation facilities (such as roadways) by potentially blocking travel lanes with construction equipment and through increasing congestion as a result. Coordination with local jurisdictions is generally required by local jurisdictions in order to maintain adequate emergency access for ambulance and emergency services.

The Plan encourages more compact development. As discussed in Section 3.15.1, *Public Services*, under the fire protection and police protection discussions, compact land uses are generally more efficient at serving the public for emergency response. This is often because urban areas tend to be well served with these facilities and because the more compact land use pattern better facilitates access to specific sites.

However, while regulations (especially in urban areas) generally ameliorate potential impacts with respect to emergency access, due to potential increased traffic congestion associated with construction of projects anticipated as a result of the Plan, there is the potential for the Plan to result in interference with emergency access. Therefore, the Plan would have the potential to result in inadequate emergency access. As such, impacts are considered significant impact and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-HAZ-1, SMM-HAZ-2, SMM-WF-1, and SMM-TRA-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-HAZ-1 through PMM-HAZ-3.

PMM-HAZ-4 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects which may substantially impair implementation of an adopted emergency response plan or emergency evacuation plan, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:

- Continue to coordinate locally and regionally based on ongoing review and integration of projected transportation and circulation conditions.
- Develop new methods of conveying projected and real time information to citizens using emerging electronic communication tools including social media and cellular networks;
- Continue to evaluate lifeline routes for movement of emergency supplies and evacuation.
- Prior to construction, project implementation agencies can and should ensure that all necessary local and state road and railroad encroachment permits are obtained. The project implementation agency can and should also comply with all applicable conditions of approval. As deemed necessary by the governing jurisdiction, the road encroachment permits may require the contractor to prepare a traffic control plan in accordance with professional

engineering standards prior to construction. Traffic control plans can and should include the following requirements:

- Identification of all roadway locations where special construction techniques (e.g., directional drilling or night construction) would be used to minimize impacts to traffic flow.
- Development of circulation and detour plans to minimize impacts to local street circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone.
- Scheduling of truck trips outside of peak morning and evening commute hours.
- Limiting of lane closures during peak hours to the maximum extent feasible.
- Usage of designated haul routes to minimize truck traffic on local roadways to the maximum extent feasible.
- Inclusion of detours for bicycles and pedestrians in all areas potentially affected by project construction.
- Installation of traffic control devices as specified in the California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones.
- Development and implementation of access plans for highly sensitive land uses such as police and fire stations, transit stations, hospitals, and schools. The access plans would be developed with the facility owner or administrator. To minimize disruption of emergency vehicle access, affected jurisdictions can and should be asked to identify detours for emergency vehicles, which will then be posted by the contractor. Notify in advance the facility owner or operator of the timing, location, and duration of construction activities and the locations of detours and lane closures.
- Storage of construction materials only in designated areas.
- Coordination with local transit agencies for temporary relocation of routes or bus stops in work zones, as necessary.
- Ensure the rapid repair of transportation infrastructure in the event of an emergency through cooperation among public agencies and by identifying critical infrastructure needs necessary for: a) emergency responders to enter the region, b) evacuation of affected facilities, and c) restoration of utilities.
- Enhance emergency preparedness awareness among public agencies and with the public at large.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to emergency response plans, emergency evacuation plans, and emergency access, due to the regional nature of the analysis, unknown site conditions and

project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT HAZ-7 Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires.

As discussed in Section 3.0, *Introduction to the Analysis*, due to the similarities of the topic areas, Impact HAZ-7 is addressed together with Impact WF-2 in Section 3.20, *Wildfire*, of this 2024 PEIR.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in of itself, would result in significant adverse environmental impacts with respect to hazards and hazardous materials, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

3.9.4 SOURCES

- Blanchard, I.E., C.J. Doig, B.E. Hagel, A.R. Anton, D.A. Zygum, J.B. Kortbeek, D.G. Powell, T.S. Williamson, G.H. Fick, and G.D. Innes. 2012. Emergency Medical Services Response Time and Mortality in an Urban Setting, Prehospital Emergency Care, 16:1, 142151. <https://pubmed.ncbi.nlm.nih.gov/22026820/>. Accessed September 6, 2023.
- California Energy Commission. 2020. *Nuclear Power Reactors in California*. March.
- California Environmental Protection Agency. 2023. *Cortese List Background and History*. August 19.
- California's Office of Emergency Services. 2018. *2018 California State Hazard Mitigation Plan*. September.
- California Department of Toxic Substances Control (DTSC). 2005. *DTSC – How to Handle Mercury Switches in Major Appliances Fact Sheet*. March.
- DTSC. 2010. *Universal Waste Fact Sheet*. January.
- DTSC. 2023a. Hazardous Material Treatment Storage and Disposal Facilities in the SCAG Region. March 23.
- DTSC. 2023b. What is EnviroStor.
- DTSC. 2023c. Cortese List Sites in the SCAG Region. March 23.
- DTSC. 2023d. *Polychlorinated Biphenyl (PCB) Evaluation Quick Reference Guide*. DTSC. 2023e. *Final Draft Supplemental Guidance: Screening and Evaluating Vapor Intrusion (Supplemental VI Guidance)*. February.
- DTSC. 2023f. *Draft Hazardous Waste Management Report*. <https://dtsc.ca.gov/wp-content/uploads/sites/31/2023/07/Hazardous-Waste>. Accessed September 15, 2023.
- Fitch, J. 2005. "Response Times: Myths, Measurement and Management." *The Journal of Emergency Medical Services*, 31 Aug. 2005. <https://www.jems.com/2005/08/31/response-times-myths44-measure/>. Accessed September 6, 2023.
- Los Angeles County Department of Public Works. 2023. Disaster Route Maps. <https://dpw.lacounty.gov/dsg/DisasterRoutes/city.cfm>. Accessed on August 28, 2023.
- Los Angeles Fire Department (LAFD). 1988. *Bulletin No. 133, Training Bulletin: Traffic Signal Preemption System for Emergency Vehicles*, October.
- LAFD. 2023. Strategic Plan 2023-2026. https://ens.lacity.org/lafd/lafdreport/lafdlafdreport1864169989_03162023.pdf.
- San Onofre Nuclear Generating Station Community (SONGS). 2019. Crucial Milestone Achieved for Decommissioning San Onofre Nuclear Plant. October 17.
- State Water Resources Control Board (SWRCB). 2023. GeoTracker, Leaking Underground Storage Tank (LUST) Sites. March 23.
- University of California, Berkeley. 2023. Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center. <https://tims.berkeley.edu/>. Accessed September 6, 2023.
- U.S. Environmental Protection Agency (USEPA). 2023a. Federal Superfund Sites. March 23.
- USEPA. 2023b. Lithium Battery Recycling Regulatory Status and Frequently Asked Questions. May 24.
- World Road Association (PIARC). 2023. Road Network Operations & Intelligent Transport Systems – Safety Benefits. <https://rno-its.piarc.org/en/its-basics-benefits-its-types-benefit/safety-benefits>. Accessed September 14, 2023.

3.10 HYDROLOGY AND WATER QUALITY

This section of the 2024 PEIR describes the existing hydrology and water quality conditions within the SCAG region, sets forth the regulatory framework that affect hydrology and water quality, and analyzes the potential impacts of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures, as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental reviews to reduce identified impacts as appropriate and feasible. Impacts related to water supplies and associated infrastructure are discussed in Section 3.19, *Utilities and Service Systems*, of this 2024 PEIR.

3.10.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for hydrology and water quality follow:

- *Best management practices (BMPs)*: For purposes of this 2024 PEIR, a BMP is any program, technology, process, siting criteria, operating method, measure, or device that controls, prevents, removes, or reduces stormwater pollution. Generally, BMPs focus on water quality problems caused by increased impervious surfaces from land development. BMPs are designed to reduce stormwater volume, peak flows, and/or nonpoint source pollution through evapotranspiration, infiltration, detention, and filtration or biological and chemical actions.
- *Ephemeral drainages*: An ephemeral stream or drainage has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.
- *Eutrophication*: Eutrophication is the process by which an entire body of water, or parts of it, becomes progressively enriched with minerals and nutrients, particularly nitrogen and phosphorus.
- *Groundwater*: Groundwater is the water present beneath Earth's surface in rock and soil pore spaces and in the fractures of rock formations. A unit of rock or an unconsolidated deposit is called an aquifer when it can yield a usable quantity of water. The depth at which soil pore spaces or fractures and voids in rock become completely saturated with water is called the water table.
- *Hydrologic unit code (HUC)*: The United States is divided and sub-divided into successively smaller hydrologic units that are classified into four levels: regions, sub-regions, accounting units, and cataloging units. The hydrologic units are arranged or nested within each other, from the largest geographic area (regions) to the smallest geographic area (cataloging units). Each hydrologic unit is identified by a unique HUC consisting of two to eight digits based on the four levels of classification in the hydrologic unit system.
 1. The first level of classification divides the United States into 21 major geographic areas, or regions. These geographic areas contain either the drainage area of a major river, such as the Missouri region, or the combined drainage areas of a series of rivers, such as the California region.
 2. The second level of classification divides the 21 regions into 221 subregions. A subregion includes the area drained by a river system, a reach of a river and its tributaries in that reach, a closed basin(s), or a group of streams forming a coastal drainage area.

3. The third level of classification subdivides many of the subregions into accounting units. These 378 hydrologic accounting units are nested within or can be equivalent to the subregions.
 4. The fourth level of classification is the cataloging unit, the smallest element in the hierarchy of hydrologic units. A cataloging unit is a geographic area representing part or all of a surface drainage basin, a combination of drainage basins, or a distinct hydrologic feature. There are 2,264 Cataloging Units in the country.
- *Impaired waters:* Under Clean Water Act (CWA) Section 303(d), states, territories, and authorized tribes are required to develop lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet the water quality standards of the jurisdiction. The law requires that these jurisdictions establish priority rankings for waters on the lists and develop total maximum daily loads (TMDL) (defined further below) for these waters.
 - *Mudflow:* Mudflows result from the downslope movement of soil and/or rock under the influence of gravity.
 - *National Flood Insurance Program (NFIP):* The NFIP aims to reduce the impact of flooding on private and public structures. It does so by providing affordable insurance to property owners, renters, and businesses and by encouraging communities to adopt and enforce floodplain management regulations.
 - *Non-point source runoff:* Runoff that occurs on surfaces before reaching a channel is also called a nonpoint source. If a nonpoint source contains man-made contaminants, the runoff is called nonpoint source pollution. A land area which produces runoff that drains to a common point is called a drainage basin. When runoff flows along the ground, it can pick up soil contaminants including, but not limited to, petroleum, pesticides, or fertilizers that become discharge or nonpoint source pollution.
 - *Perennial stream:* A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
 - *Runoff:* Runoff is the water flow that occurs when the soil is infiltrated to full capacity and excess water from rain, meltwater, or other sources flows over the land. This is a major component of the water cycle, and the primary agent in water erosion. In addition to causing water erosion and pollution, surface runoff in urban areas is a primary cause of urban flooding, which can result in property damage, damp and mold in basements, and street flooding.
 - *Seiche:* A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, lake, or storage tank.
 - *Stormwater pollution prevention plan (SWPPP):* A plan created by constructors to show their plans for sediment and erosion control. Typically, these plans are part of an overall design that details procedures to be followed during various phases of construction. This is required by federal and state regulations governing stormwater runoff from active construction sites that are more than one acre in area.
 - *Total maximum daily loads (TMDL):* A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards.
 - *Tsunami:* A tsunami is a sea wave produced by a significant undersea disturbance that flows onto coastal areas and may cause damage.
 - *Waters of the United States:* The definition of "waters of the United States" are regulatory definitions of "waters of the United States" are those portions of 33 Code of Federal Regulations (CFR) Part 328 and 40 CFR Parts 110, 112, 116, 117, 122, 230, 232, 300, 302, and 401 as they existed immediately prior to the 2015 Rule's

amendments (see discussion below in Section 3.10.2, *Regulatory Framework*). For example, pursuant to 40 CFR 120.2(a), the term “waters of the United States” means:

- (1) Waters which are:
 - (i) Currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
 - (ii) The territorial seas; or
 - (iii) Interstate waters;
- (2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;
- (3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;
- (4) Wetlands adjacent to the following waters:
 - (i) Waters identified in paragraph (a)(1) of this section; or
 - (ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;¹
- (5) Intrastate lakes and ponds not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

HYDROLOGIC REGIONS

The California Department of Water Resources (DWR) has divided the state into ten hydrologic regions, corresponding to the state’s major water drainage basins (DWR 2020). The SCAG region includes portions of four hydrologic regions: Central Coast, Colorado River, South Coast, and South Lahontan (see **Map 3.10-1, Hydrologic Regions**). The four hydrologic regions are described below; the information is from the California Water Plan and a California Public Utilities Commission (CPUC) state-wide water study (DWR 2019; CPUC 2010).

CENTRAL COAST

The Central Coast Hydrologic Region covers approximately 7.2 million acres and extends from southern San Mateo County in the north to Santa Barbara County in the south. The region includes all of Santa Cruz, Monterey, San Benito, San Luis Obispo and Santa Barbara counties and parts of San Mateo, Santa Clara, and Ventura counties. Precipitation ranged from 4.7 inches during the dry year of 2014 to 16.2 inches in the wet year of 2011. Due to the thriving agriculture and viticulture business in the area, the region is the most groundwater-dependent hydrologic

¹ On May 25, 2023, the U.S. Supreme Court issued a decision in the case of *Sackett v. U.S. Environmental Protection Agency* 143 S.Ct. 1322. The court found that wetlands separated from traditional navigable waters are not considered “waters of the United States” under federal Clean Water Act over which protections of the CWA extend; rather, wetlands subject to CWA regulation are limited to those directly adjacent to navigable lakes, rivers, streams and ocean waters, and which have a continuous surface connection with those waters; accordingly, federal regulators’ assertion of wetlands regulatory jurisdiction under CWA 404 over plaintiffs’ filing of their residential lot was improper.

region in California. Approximately 73 percent (2011 wet year) to 89 percent (2014 dry year) of water demands in the region are met via groundwater extraction. Additional water supply is supplemented from the State Water Project and the Central Valley Project. Due to the extent of groundwater extraction, the Central Coast faces challenges such as groundwater basin overdraft, seawater intrusion, and water quality degradation.

COLORADO RIVER

The Colorado River Hydrologic Region covers approximately 13 million acres of southeast California. Imperial County, and large parts of Riverside and San Bernardino counties are within this hydrologic region. It is the most arid hydrologic region in California. Precipitation ranged from 2.7 inches in the dry year of 2014 to 5.9 inches in the wet year of 2011. The Colorado River serves as the main tributary and water supply of the region with usage ranging from 81 percent during the dry year of 2014 to 78 percent during the wet year of 2011. Overdraft and leaking underground storage tanks pose issues to water availability and quality in the region.

SOUTH COAST

The South Coast Hydrologic Region comprises approximately 6.8 million acres in the southwestern portion of the state. The region is bounded to the south by Mexico and the Pacific Ocean to the west. Most of the region falls within SCAG's jurisdiction, including parts of Ventura, Orange, Los Angeles, Riverside, and San Bernardino counties. Approximately 50 percent of the population of California lives within this region and as such, it maintains the highest population density of any hydrologic region. Precipitation ranged from 4.4 inches during the dry year of 2014 to 14.2 inches in the wet year of 2011. Most water supply is provided by groundwater (39 percent during the dry year of 2014 to 30 percent during the wet year of 2011) and by the Colorado River (34 percent during the dry year of 2014 to 22 percent during the wet year of 2011).

SOUTH LAHONTAN

The South Lahontan Hydrologic Region covers over 21 million acres of eastern California. The region contains the highest (Mount Whitney) and lowest (Death Valley) surface elevations of the state and the contiguous U.S. Annual precipitation ranged from 5.3 inches during the dry year of 2014 to 13.6 inches in the wet year of 2011. SCAG counties within the South Lahontan Hydrologic Region include San Bernardino and Los Angeles. The 223-mile-long Los Angeles Aqueduct is the region's major water development feature. The aqueduct system provides large quantities of power and water to the region. However, most water supply within this hydrologic region is provided by groundwater, ranging from 70 percent during the dry year of 2014 to 57 percent during the wet year of 2011.

SURFACE HYDROLOGY

Surface water hydrology refers to surface water systems, including watersheds, floodplains, rivers, streams, lakes, and reservoirs.

WATERSHEDS

Watersheds refer to areas of land, or a basin, in which all waterways drain to one specific outlet, or body of water, such as a river, lake, ocean, or wetland. Watersheds have topographical divisions such as ridges, hills, or mountains. Precipitation that falls within a given watershed, or basin, eventually drains into the same body of water. As shown in **Map 3.10-2, Watersheds in the SCAG Region**, there are 65 watersheds in the SCAG region (SWRCB 2004).

Watersheds are an essential part of the landscape, ecological composition, economy, and life, especially in Southern California and the SCAG region where arid conditions place great emphasis on the necessity of water. Unfortunately, water resources in the SCAG region have been degraded by a multitude of factors. Industrial and agricultural run-off, mining operations, loss of habitat, illegal dumping, and eutrophication are just some of the causes of impaired water quality. As climate change affects precipitation patterns and drought conditions become more severe, water resources must be carefully managed to ensure their protection. Groundwater pumping must be performed with caution to prevent saltwater intrusion or permanent aquifer subsidence.

DRAINAGES

Despite its primarily arid climate, the SCAG region has a variety of surface water resources, such as creeks, rivers, lakes, and reservoirs. The major rivers, lakes, and reservoirs are shown on **Map 3.10-3, Federally Protected Wetlands and Waterways within the SCAG Region**. Due to the dry climate of the region, many rivers and creeks are intermittent or ephemeral,² drying up in the summer or flowing only in reaction to precipitation. Annual rainfall amounts vary depending on elevation and proximity to the coast. Some waterways in the region, like the Los Angeles River, maintain a perennial flow due to agricultural irrigation and urban landscape watering.

Most waterways in California have been diverted for agricultural and economic purposes. Within the SCAG region, surface waters such as Los Angeles River, San Gabriel River, and the San Jacinto River have been dammed, redirected, and paved for human uses and as flood control measures. The Salton Seas is a man-made inland sea that resulted from the diversion of the Colorado River around 1905. The drainage reservoir serves Imperial County and would dry up without agricultural runoff flows. Other major natural surface waters like the Ventura River, Santa Clara River, Santa Ana River, and portions of the Santa Margarita River maintain more natural conditions and flows and support aquatic species and natural habitats. All surface water drainages suffer from water quality impacts such as overuse, erosion, and illegal dumping.

LAKES AND RESERVOIRS

Most lakes in Southern California have been generated by humans, through manual digging and/or the damming of rivers across the state. Lakes and reservoirs serve as important habitat as well as recreational purposes; however, the most vital uses include agricultural irrigation, flood control, and drinking water, all of which are imperative to life in the semi-arid climate. Major lakes in the SCAG region include Big Bear Lake, Lake Arrowhead, Lake Casitas, Diamond Valley Lake, and the Salton Sea.

Big Bear Lake and Lake Arrowhead are in San Bernardino County and were created via the damming of rivers. Big Bear Lake was created in 1884 and has no tributary inflow, replenishing itself solely by snowmelt (Big Bear Municipal Water District 2018). The dam at Lake Arrowhead was completed in 1922 and the lake is still used for recreation and potable water (Arrowhead Lake Association 2023). Damming also created Lake Casitas in Ventura County (U.S. Bureau of Reclamation 2023) and the Salton Sea, which is one of the saltiest bodies of water on earth due to evaporation and agricultural runoff (The Salton Sea Authority 2017). Diamond Valley Lake is the newest and largest reservoir in Southern California, holding 800,000 acre-feet (af) of water (Diamond Valley Marina 2023). While the lake is situated in Riverside County, it is connected to the State Water Project and serves as an important resource for potable water and hydroelectric power throughout the SCAG region.

² An ephemeral stream flows only during or for a short duration after precipitation events. An intermittent stream flows during certain times of the year, when precipitation and groundwater provides water for stream flow.

COASTAL WATERS

Ventura, Los Angeles, and Orange Counties in the SCAG region border the Pacific Ocean and contain coastal waters such as bays, estuaries, beaches, and open ocean. Santa Monica Bay comprises a large portion of the region’s open coastal waters and important harbors include the Los Angeles/Long Beach Harbor complex and Port Hueneme. Important estuaries, providing unique and critical habitat for wildlife, include coastal lagoons and wetlands. Unfortunately, coastal wetlands are negatively impacted by run-off, discharges, oil spills, dredging, illegal dumping, and natural oil seeps (LARWQCB 2014).

FEDERALLY PROTECTED WETLANDS AND WATERWAYS

Under CWA Section (USEPA 2022b) and Rivers and Harbors Act (RHA) Section 10 (USEPA 2022a), some wetlands and waterways are federally protected by the U.S. Army Corps of Engineers (USACE). Parties must obtain special permits for discharging dredged or fill materials or pollutants into designated waters, intensifying protections for such wetlands and waterways. Designated wetlands and waterways in the SCAG region are identified in **Table 3.10-1, Federally Protected Wetlands and Waterways within the SCAG Region.**

TABLE 3.10-1 Federally Protected Wetlands and Waterways within the SCAG Region

MAJOR RIVER OR LAKE	ACRES	LINEAR MILES
Imperial County		
Salton Sea	190,391.60	—
Los Angeles County		
Castaic Lake	2,230.82	—
Morris Reservoir	283.42	—
Puddingstone Reservoir	243.77	—
Pyramid Lake	1,177.31	—
San Gabriel Reservoir	524.85	—
Los Angeles River	—	50.73
San Gabriel River	—	59.19
Santa Clara River	—	43.86
Orange County		
Irvine Lake	445.54	—
San Gabriel River	—	0.35
Santa Ana River	—	27.18

MAJOR RIVER OR LAKE	ACRES	LINEAR MILES
Riverside County		
Diamond Valley Lake	4,057.69	—
Lake Elsinore	3,308.69	—
Lake Matthews	2,666.79	—
Perris Reservoir	1,920.63	—
Salton Sea	42,537.27	—
Skinner Reservoir	790.46	—
Vail Lake	257.23	—
Santa Ana River	—	24.43
Santa Margarita River	—	5.14
San Bernardino County		
Big Bear Lake	2,692.69	—
Lake Arrowhead	735.62	—
Silverwood Lake	905.09	—
Santa Ana River	—	43.86
Ventura County		
Lake Casitas	2,446.81	—
Lake Piru	1,220.91	—
Santa Clara River	—	39.27
Total	258,837.19	294.00

Source: USGS 2023

GROUNDWATER HYDROLOGY

Groundwater accounts for most of the local fresh water within the SCAG region. The Central Coast and South Lahontan watersheds most heavily rely on groundwater for urban and agricultural use, although all four watersheds are dependent upon it. Drought conditions in recent years have led to groundwater overdraft and associated subsidence, in which the groundwater basin collapses with dirt and renders it unusable. Improved groundwater management and water reduction measures, as well as wet weather conditions, including historic rainfall from numerous storm systems in early 2023, have assisted in lessening groundwater overdraft. However, it is still a major concern within the SCAG region and across the state, as climate change leads to more severe and volatile weather patterns and the population of the area continues to expand.

WATER QUALITY

Point and non-point source pollution are different forms of pollution that can damage surface and groundwater quality and are regulated at the federal, state, and local level. Point source pollution refers to contaminants that enter a watershed, usually through a specific location such as a pipe. The source must be documented and the flow from the source is subject to a discharge permit issued by a Regional Water Quality Control Board (RWQCB).

Examples of point source pollution are discharges from sewage treatment plants and industrial facilities. Because point sources are much easier to regulate than non-point sources, they were the initial focus of the 1972 CWA. Regulation of point sources since then has dramatically improved the water quality of rivers and streams throughout the country.

In contrast to point source pollution, non-point source pollution, also known as “pollution runoff,” is diffuse. Non-point pollution comes from different areas (such as contaminated runoff from urban areas) and is significantly influenced by land uses. A driveway or the road in front of a house may be a source of pollution if spilled oil, leaves, pet waste, or other contaminants are washed into a storm drain. Non-point source pollution is now considered a major water quality problem in the United States.

The problem of non-point source pollution, specifically runoff pollution is especially acute in urbanized areas where a combination of impermeable surfaces, landscape irrigation, highway runoff, and illicit dumping increase the pollutant loads in stormwater. The State Water Quality Control Board has identified the following pollutants found in urban runoff as being of concern:

- **Sediment.** Excessive sediment loads in streams can interfere with photosynthesis, aquatic life respiration, growth, and reproduction.
- **Nutrients.** Nitrogen and phosphorus can result in eutrophication of receiving waters (excessive or accelerated growth of vegetation or algae), reducing oxygen levels available for other species.
- **Pathogens.** Pathogens (e.g., bacteria and viruses) introduced to receiving waters from animal excrement in the watershed and by septic systems can restrict water contact activities.
- **Oxygen demanding substances.** Plant debris and animal waste (e.g., lawn clippings, animal excrement, and litter) can reduce dissolved oxygen levels as they decompose.
- **Petroleum Hydrocarbons.** Petroleum hydrocarbons (i.e., fuel, oil, and grease) from vehicles and motorized equipment are toxic to some aquatic life.
- **Metals.** Lead, zinc, cadmium, and copper are heavy metals commonly found in stormwater introduced by vehicles and motorized equipment. Other metals include chromium, iron, nickel, and manganese. These metals can enter waterways through storm drains along with sediment, or as atmospheric deposition.
- **Toxic pollutants.** Pesticides, phenols, and polynuclear aromatic hydrocarbons are toxic organic chemicals found in stormwater.
- **Floatables.** Trash, litter, and yard waste in waterways increases metals and toxic pollutant loads in addition to undesirable aesthetic impacts.
- **Synthetic Organics.** Synthetic organic pollutants (e.g., pesticides, herbicides, polychlorinated biphenyls, etc.) are toxic organic chemicals found in stormwater.
- **Physical Parameters.** Physical parameters such as salinity, elevated temperature, and pH can also be toxic if outside of naturally occurring ranges.

As shown in **Table 3.10-2, Pollutants Associated with Transportation**, there are pollutants specific to transportation that affect water quality. Highway runoff is a component of urban runoff contributing oil and grease, sediment, nutrients, heavy metals, and toxic substances.

TABLE 3.10-2 Pollutants Associated with Transportation

POLLUTANT	SOURCE
Asbestos	Clutch plates, brake linings
Cadmium	Tire wear and insecticides
Copper	Thrust-bearing, bushing, brake linings, and fungicides and insecticides
Chromium	Pavement materials, metal plating, rocker arms, crankshafts, rings, and brake linings
Cyanide	Anti-caking compound in de-icing salt
Lead	Leaded gasoline, motor oil, transmission Babbitt metal bearings, tire wear
Iron	Auto-body rust, steel highway structures, moving engine parts
Manganese	Moving engine parts
Nickel	Diesel fuel and gasoline, pavement material, lubricating oil, metal plating, bushing wear, and brake linings
Nitrogen and Phosphorus	Motor oil additives, fertilizers
Sulphates	Roadway beds, fuel, and de-icing salt
Zinc	Motor oil and tires
Grease and Hydrocarbons	Spills and leaks of oil and n-paraffin lubricants, antifreeze, hydraulic fluids
Rubber	Tire wear
Sediment	Pavement wear, construction, and maintenance activities

Source: USEPA 1995

The U.S. Environmental Protection Agency (USEPA) requires the listing of impaired and threatened waters under CWA Section 303(d) (USEPA 2022c). Each state submits candidate impaired and threatened waters to the USEPA for review and approval. Each state then identifies the pollutant causing the impairment and develops rules and guidelines towards its improvement. There are 335 impacted waterways and water bodies within the SCAG region (see **Appendix E, Hydrology**). Poor water management and overuse in Southern California has led to problems with the various above-listed pollutants.

LAND USE AND WATER QUALITY

Buildings, roads, sidewalks, parking lots, and other impervious surfaces define the urban landscape. Impervious surfaces also alter natural hydrology and prevent the infiltration of water into the ground. Impervious surfaces change the flow of stormwater over the landscape. In underdeveloped areas, vegetation holds down soil, slows the flow of stormwater over land, and filters out some pollutants by both slowing the flow of the water and trapping some pollutants in the root system. Additionally, some stormwater filters through the soil, replenishing underground aquifers. As land is converted to other uses such as commercial or residential development, many of these natural processes are eliminated as vegetation is cleared and soil is paved over. As more impervious surface coverage is added to the landscape, more stormwater flows faster off the land. The greater volume of stormwater increases the possibility of flooding, and the high flow rates of stormwater do not allow for pollutants to settle out, meaning that more pollution gets concentrated in the stormwater runoff. Research on urban stream protection has found that stream degradation occurs when a watershed reaches relatively low levels of imperviousness—in the range of 10 to 20 percent; water quality degradation can occur when impervious surface coverage in a watershed surpasses 10 percent (Hakkam 2016). Fish habitat, spawning, and diversity suffer when

imperviousness is greater than 10 to 12 percent. Wetland plants and amphibian populations diminish when impervious surfaces are greater than 10 percent. Generally, the higher the percentage of impervious surface, the greater the degradation in stream water quality (Brabec 2002). Based on this research, streams can be considered stressed in watersheds when the impervious coverage exceeds 10 to 15 percent. The link between impervious surfaces and degraded water quality points to the need for careful comparisons between dispersed and compact development strategies. On a regional or watershed level, greater overall water quality protection is achieved through more concentrated or clustered development. Concentrated development protects the watershed by leaving a larger percentage of it in its natural condition.

WASTE DISCHARGE REQUIREMENTS

If the operation or discharges from a property or business affects California's surface, coastal, or groundwater, it would normally be required to obtain a permit to discharge waste from the appropriate RWQCB. Discharges of pollutants into surface waters require a National Pollutant Discharge Elimination System (NPDES) permit application with the appropriate RWQCB (USEPA 2020). For other types of discharges, such as those affecting groundwater or in a diffused manner (e.g., erosion from soil disturbance or waste discharges to land) a report of waste discharge must be filed with the appropriate RWQCB to obtain waste discharge requirements (WDR). For specific situations, the RWQCB may waive the requirement to obtain a WDR for discharges to land or may determine that a proposed discharge can be permitted more effectively through enrollment in a general NPDES permit or general WDR.

RWQCBs in the SCAG region have identified a typical list of activities that affect water, but the list is by no means inclusive of all situations (SD RWQCB 2017):

- Discharge of process wastewater not discharging to a sewer (factories, cooling water, etc.)
- Confined Animal facilities (dairies, feedlots, etc.)
- Waste containments (landfills, waste ponds, etc.)
- Construction sites
- Boatyards and shipyards
- Discharges of pumped groundwater and cleanups (underground tank cleanups, dewatering, spills)
- Material handling areas draining to storm drains
- Sewage treatment facilities
- Filling of wetlands
- Dredging, filling, and disposal of dredge wastes
- Commercial activities not discharging to a sewer (e.g., factory wastewater, storm drain)
- Waste discharges to land

FLOOD HAZARDS

RIVERINE AND STORMWATER FLOODING

Riverine flooding generally occurs when soil and vegetation cannot absorb excess rainwater or snowmelt, and water runs off the land in quantities that cannot be carried in stream channels or kept in natural ponds or man-made reservoirs. Periodic floods occur naturally on many rivers, forming areas known as floodplains. These river floods usually result from heavy rain, sometimes combined with melting snow, which causes the rivers to overflow their banks. A flood that rises and falls rapidly with little or no advance warning is called a flash flood. Flash floods usually result from intense rainfall over a relatively small area.

Flooding occurs occasionally on streets and roads in urbanized areas where stormwaters are diverted into manmade or artificial drainage systems. In urbanized areas with significant area of impervious surfaces, stormwater is not able to permeate and percolate into the soil and is diverted into a storm drainage system. In some areas, these drainage systems are occasionally overloaded with stormwater drainage, or the drains become clogged with leaves and other debris, thereby impeding stormwater drainage onto transportation facilities (i.e., roadways). The ability of the storm drainage system to accommodate water flows is also largely based on ground permeability and infrastructure capacity. In metropolitan areas, agencies responsible for maintaining and upgrading drainage facilities to accommodate volume are local cities and the counties.

Principal impacts of flooding include damage to permanent structures, relocation of non-stationary objects, loss of human life, and damage to infrastructure and soil conditions. After the initial damage from floodwaters, standing water often creates a secondary level of destruction, by ruining crops, further undermining and damaging infrastructure, and contaminating water wells. Debris flows are another hazard associated with flooding, when heavy soils and rocks slide down into a valley, threatening the infrastructure below.

COASTAL FLOODING AND SEA-LEVEL RISE

During the winter months (generally November to March), offshore storms originating from the Pacific Ocean arrive at SCAG county shorelines that border the ocean. These storms can cause an up-surge in water levels above typical tides, and often include strong winds and wind-generated waves. In addition, as discussed below, seismically induced waves (i.e., as the result of a tsunami event) may occur on occasion, having the potential to cause coastal flooding. The water level storm surge, particularly if it coincides with extreme precipitation and riverine runoff, may result in coastal flooding. Waves and wave run-up riding on top of surging seas may also contribute to coastal flooding, wave-impact damage, and erosion.

Rising sea levels, caused by humans' greenhouse gas emissions (GHGs), will increase the potential for coastal flooding, and the issue of sea-level rise is important in land use planning and hazard analysis in coastal areas. The State of California released its *Sea-Level Rise Guidance 2018 Update* in 2018, which provides a science-based methodology for state and local governments to analyze and assess the risks associated with sea-level rise, including ranges of sea-level rise projections for locations along the California coast (California Natural Resources Agency and California Ocean Protection Council 2018). **Table 3.10-3, Estimates of Sea-Level Rise for Los Angeles Relative to the Year 2000**, lists the probabilistic projections of sea-level rise for the Los Angeles tidal gauge for low- and high-emissions scenarios through 2100. Sea-level rise projections beyond 2050 are highly dependent on assumptions regarding future global GHGs and future changes in the rate at which land ice melts. Based on mapping completed for Los Angeles County (Grifman et. al. 2016), portions of Southern California beaches could start to disappear as soon as 2030 and by 2100, beach retreat will be along the entire coast. In

addition, flooding hazards will rise and cliff retreat will accelerate. **Map 3.10-4, Areas Vulnerable to Sea Level Rise**, shows the coastal areas anticipated to be affected by sea level rise.

TABLE 3.10-3 Estimates of Sea-Level Rise for Los Angeles Relative to the Year 2000

YEAR	LIKELY RANGE (FEET) ^A 66% PROBABILITY SEA LEVEL RISE IS ...	1-IN-200 CHANCE (FEET) ^B 0.5% PROBABILITY SEA LEVEL RISE MEETS OR EXCEEDS ...	H++ SCENARIO (FEET) ^C
2050	1.0	1.8	2.6
2100 Low Emissions ^d	2.1	5.4	—
2100 High Emissions	3.2	6.7	9.9

Source: CNRA/OPC 2018

Table Notes:

- The “Likely Range” shown is the value recommended by the State of California for low-risk aversion decisions and represents the upper end of the range of sea-level rise that has a 66% probability of occurring by the given year.
- The “1-in-200 Chance” shown is the value recommended by the State for medium- to high-risk aversion decisions and represents the feet of sea-level rise that has a 0.5% probability of occurring by the given year.
- The “H++ Scenario” shown is the value recommended by the State for extreme-risk aversion decisions and is a single scenario that does not have an associated likelihood of occurrence as do the other probabilistic projections. The state recommends considering the H++ Scenario for projects with a life span beyond 2050 that have a low tolerance for risk.
- The State recommends considering low- and high-emissions scenarios after 2050. The emissions scenarios are the same as those used by the Intergovernmental Panel on Climate Change’s Fifth Assessment Report. The “High Emissions” value is consistent with a “business-as-usual” future in which there are few global efforts to limit or reduce carbon dioxide emissions. The “Low Emissions” value is consistent with a future in which global carbon dioxide emissions decline by about 70% between 2015 and 2050, to zero by 2080, and below zero thereafter.

The *State of California Sea-Level Rise Guidance* recommends that all planning for construction projects in areas that are vulnerable to future sea-level rise must consider a range of scenarios for 2050 and 2100 to assess project vulnerability, and, to the extent feasible, must reduce expected risks and increase resiliency with respect to sea-level rise. The state’s strategic plan to protect the coast stipulates that projects should seek to be resilient to at least 3.5 feet of sea-level rise and should achieve this level of resilience by 2050 (California Natural Resources Agency and California Ocean Protection Council, 2020). To accommodate the potential for additional sea-level rise beyond 3.5 feet, state guidance calls for an adaptive management approach. Adaptive management is an iterative process that involves monitoring conditions to evaluate whether an area could be inundated by flooding exacerbated by sea-level rise and identifying actions to be implemented to ensure that the area and existing structures are resilient to future flooding conditions.

100-YEAR FLOODPLAIN

The 100-year floodplain denotes an area that has a 1 percent chance of being inundated during any particular 12-month period. Floodplain zones are determined by Federal Emergency Management Agency (FEMA) and used to create Flood Insurance Rate Maps (FIRM) (FEMA 2023). These tools assist communities in mitigating flood hazards through land use planning. FEMA also outlines specific requirements for any construction located within a 100-year floodplain, whether residential, commercial, or industrial, that a local community needs to comply with to participate in the NFIP. Cities or counties then implement these requirements as regulations specified in the local building code. Each watershed in the SCAG region has associated 100-year flood plains, with Imperial County containing the most land designated as being in floodplains. In addition, sections of the SCAG region that have ocean or estuarine shorelines also have coastal 100-year floodplains mapped on FIRMs. FEMA does not account for future sea-level rise on its FIRMs.

SEICHE

A seiche is an oscillation of a body of water in an enclosed or semi enclosed basin, such as a reservoir, harbor, lake, or storage tank. Seiches can be caused by strong winds, rapid changes in atmospheric pressure, or the seismic shaking of an earthquake. Many examples of seiches can be found in Southern California, where water reservoirs have been constructed or developed by damming rivers. Examples of enclosed water bodies in the SCAG region include Big Bear Lake, Lake Arrowhead, Lake Casitas, Castaic Lake, Pyramid Lake, Lake Elsinore, Diamond Valley Lake, and the Salton Sea.

TSUNAMI

Tsunamis are massive waves triggered by large earthquakes along fault lines or volcanic eruptions in or near the ocean. Tsunamis have potential to inundate and flood areas much further inland than regular ocean waves. Such inundation can cause severe damage to local infrastructure and even loss of life. The three coastal counties susceptible to tsunamis include Los Angeles, Orange, and Ventura Counties (CGS 2022). The areas susceptible to tsunamis are shown on **Map 3.10-5, Areas Susceptible to Tsunamis**.

3.10.2 REGULATORY FRAMEWORK

FEDERAL REGULATIONS

RIVERS AND HARBORS APPROPRIATION ACT, SECTION 10

Authorization from USACE must be obtained for construction of a structure in or over any navigable water of the U.S., pursuant to Section 10 of the Rivers and Harbors Appropriation Act of 1899 (33 United States Code [USC] 403). Authorization is also needed for structures built near navigable water if they would affect the course, location, condition, or capacity of the water body, as through re-channelization, disposal of fill, and so forth.

RHA Section 10 (33 USC Section 403) requires authorization from USACE for work or structures in or affecting navigable waters of the United States. The term “navigable waters of the United States” generally includes those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible to use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity (33 CFR Section 329.4). Wild and Scenic Rivers Act of 1968 (WSRA).

The objective of the WSRA (Public Law 90–542), dated October 2, 1968, is the preservation of certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition. The WSRA provides permanent protection for some of the country’s most outstanding free flowing rivers and prohibits federal support for actions such as the construction of dams or other harmful instream activities.

CLEAN WATER ACT, AS AMENDED

Congress enacted the CWA, originally enacted as the Federal Water Pollution Control Act (Public Law 92–500) in 1948; it took on its modern form when completely rewritten in 1972 in an act entitled the Federal Water Pollution Control Act Amendments of 1972, now commonly known as the CWA. Major changes have subsequently been introduced via amendatory legislation including the CWA of 1977 and the Water Quality Act of 1987.

The CWA is the primary federal law governing water pollution. Its objective is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands. It is one of the first and most influential modern environmental laws in the U.S. As with many other major federal environmental statutes, it is administered by the USEPA, in coordination with state governments. Its implementing regulations are codified at 40 CFR Subchapters D, N, and O (Parts 100–140, 401–471, and 501–503).

The CWA authorizes federal, state, and local entities to cooperatively create comprehensive programs for eliminating or reducing the pollution of state waters and tributaries. Amendments to the CWA in 1972 established the NPDES permit program, which prohibits discharge of pollutants into the nation's waters without procurement of a NPDES permit from the USEPA. The purpose of the permit is to translate general requirements of the CWA into specific provisions tailored to the operations of each organization that is discharging pollutants. Although federally mandated, the NPDES permit program is generally administered at the state and regional levels.

The USEPA NPDES program requires NPDES permits for (1) Municipal Separate Storm Sewer Systems (MS4) Permit generally serving, or located in, incorporated cities with 100,000 or more people (referred to as municipal permits); (2) 11 specific categories of industrial activity (including landfills); and (3) construction activity that disturbs five acres or more of land. As of March 2003, Phase II of the NPDES Program extended the requirements for NPDES permits to numerous small municipal separate storm sewer systems, construction sites of 1 to 5 acres, and industrial facilities owned or operated by small municipal separate storm sewer systems, which were previously exempted from permitting.

The following paragraphs discuss specific relevant sections of the CWA.

SECTION 303(D)

CWA Section 303 (33 USC Section 1251) requires states to establish water quality standards consisting of designated beneficial uses of water bodies and water quality standards to protect those uses for all waters of the United States. Under CWA Section 303(d), states, territories, and authorized tribes are required to develop lists of impaired waters. Impaired waters are waters that do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish a priority ranking for listed waters and develop action plans to improve water quality. This process includes development of TMDLs that set discharge limits for non-point source pollutants.

SECTION 401 - WATER QUALITY CERTIFICATION

CWA Section 401 (33 USC Section 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into navigable waters, including the crossing of rivers or streams during road, pipeline, or transmission line construction, to obtain a certification from the state in which the discharge originates. The certification ensures that the discharge will comply with the applicable effluent limitations and water quality standards. The California state agency responsible for implementing CWA Section 401 in California is the RWQCB.

SECTION 402 - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

CWA Section 402 (33 USC 1341) establishes the NPDES permit process. In California, NPDES permitting authority is delegated to, and administered by the nine RWQCBs. Pursuant to Section 402, a discharge of any pollutant from

a point source into navigable waters is prohibited unless an NPDES permit is obtained. Point sources are discrete conveyances such as pipes or manmade ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters. The NPDES permit program is discussed in detail below under State Regulations.

SECTION 404 - DISCHARGE OF DREDGE OR FILL MATERIAL

CWA Section 404(33 USC Section 1344) is administered and enforced by USACE. CWA Section 404 established a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands and non-wetland bodies of water that meet specific criteria as defined in the CFR and applicable USACE guidance. The selection and use of dredge and disposal sites will be in accordance with guidelines developed by the USEPA in conjunction with the USACE and published in 40 CFR Part 230 (the "guidelines"). 40 CFR Part 230 Subpart C includes water quality aspects of dredge and fill activities. Among other topics, these guidelines address discharges, which alter substrate elevation or contours, suspended particulates, water clarity, nutrients and chemical content, current patterns and water circulation, water fluctuations, and salinity gradients. USACE administers the day-to-day program, including the determination of eligibility of projects for use of Categorical Exclusions and Nationwide Permits, and review and consideration of individual permit decisions and jurisdictional determinations. USACE also develops policy and guidance; and enforces Section 404 provisions.

EXECUTIVE ORDER 11990 - PROTECTION OF WETLANDS

Executive Order 11990 (42 Federal Register 26961) is an overall wetlands policy for all agencies managing federal lands, sponsoring federal projects, or providing federal funds to state or local projects. This executive order requires that when a construction project involves wetlands, a finding must be made by the federal agency that there is no practicable alternative to such construction, and that the proposed action includes all practicable measures to minimize impacts to wetlands resulting from such use.

ANTIDegradation POLICY

The Antidegradation Policy under USEPA's Water Quality Standards Regulations (48 Federal Register 51400, 40 CFR 131.12, November 8, 1983), requires states and tribes to establish a three-tiered antidegradation program to prevent a decrease in water quality standards:

- **Tier 1**—Maintains and protects existing uses and water quality conditions that support such uses. Tier 1 is applicable to all surface waters.
- **Tier 2**—Maintains and protects "high quality" waters where existing conditions are better than necessary to support "fishable/swimmable" waters. Water quality can be lowered in such waters but not to the point at which it would interfere with existing or designed uses.
- **Tier 3**—Maintains and protects water quality in outstanding national resource waters. Water quality cannot be lowered in such waters except for certain temporary changes.

Antidegradation was explicitly incorporated into the CWA through 1987 amendments, codified in Section 303(d)(4)(B), requiring satisfaction of antidegradation requirements before making certain changes in NPDES permits.

WATERS OF THE UNITED STATES

In 1986, the term “waters of the United States” was defined in 33 CFR 328.3(a). Various subsequent amendments, rules, lawsuits, and court decisions implemented various changes. The current regulatory and legal interpretation has returned to the original definition, as identified above in Environmental Setting under Definitions.

On June 29, 2015, USEPA and USACE jointly published a final Waters of the United States Rule (40 CFR Parts 110, 112, 116, et al. and 33 CFR Part 328) for determining the extent to which wetlands and other water features are protected under the CWA.

Following publication of the 2015 Waters of the United States Rule, 31 states, and 53 non-state parties, including environmental groups and groups representing farming, recreational, forestry, and other interests, filed complaints and petitions for review in multiple federal district and appellate courts challenging the 2015 Rule. On February 28, 2017, the President of the United States issued Executive Order 13778 directing USEPA and the Department of the Army to review and rescind or revise the 2015 Clean Water Rule. On December 30, 2022, USEPA and the Department of the Army announced a final rule founded upon the pre-2015 definition of “waters of the United States,” updated to reflect consideration of Supreme Court decisions, the science, and the agencies’ technical expertise. The new rule was published in the Federal Register January 18, 2023, and became effective March 2023 (see Section 3.4, *Biological Resources*). As noted above, on May 25, 2023, the U.S. Supreme Court issued a decision in the case of *Sackett v. U.S. Environmental Protection Agency* 143 S.Ct. 1322 indicating that wetlands separated from traditional navigable waters are not considered “waters of the United States” under federal Clean Water Act over which protections of the CWA extend; rather, wetlands subject to CWA regulation are limited to those directly adjacent to navigable lakes, rivers, streams, and ocean waters, and that have a continuous surface connection with those waters. On August 29, 2023, the agencies issued a final rule amending the Code of Federal Regulations to conform the January 2023 Rule’s definition of “waters of the United States” to the Supreme Court decision in *Sackett*. The conforming rule amends the provisions of the agencies’ definition of “waters of the United States” in the January 2023 Rule that are invalid under the Supreme Court’s interpretation of the Clean Water Act in the *Sackett* decision. The conforming rule, “Revised Definition of ‘Waters of the United States’; Conforming,” became effective on September 8, 2023 (USEPA 2023d).

NATIONAL FLOOD INSURANCE ACT

The U.S. Congress passed the National Flood Insurance Act in 1968 and the Flood Disaster Protection Act in 1973 (42 USC 4001 et seq.) to restrict certain types of development on floodplains and to provide for a NFIP. The purpose of these acts is to reduce the need for large, publicly funded flood control structures and disaster relief. The NFIP is a federal program administered by the Flood Insurance Administration of FEMA. It enables individuals who have property (a building or its contents) within the 100-year floodplain to purchase insurance against flood losses. FEMA works with the states and local communities to identify flood hazard areas and publishes a flood hazard boundary map of those areas. Floodplain mapping is an ongoing process and flood maps must be regularly updated for both major rivers and tributaries as land uses and development patterns change.

EXECUTIVE ORDER 11988, FLOOD PLAIN MANAGEMENT

The objective of Presidential Executive Order 11988, dated May 24, 1977 (42 Federal Register 26951), is the avoidance of, to the extent possible, long- and short-term adverse impacts associated with the occupancy and modification of the base floodplain (100-year floodplain) and the avoidance of direct and indirect support of development in the base floodplain wherever there is a practicable alternative. Under the Executive Order, USACE

must provide leadership and take action to avoid development in the base floodplain unless it is the only practicable alternative; reduce the hazard and risk associated with floods; minimize the impact of floods to human safety, health, and welfare: and restore and preserve the natural and beneficial values of the base floodplain.

CALIFORNIA TOXICS RULE

On May 18, 2000, USEPA promulgated numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards to be applied to waters within California (40 CFR Part 131.38). USEPA promulgated this rule based on the USEPA Administrator's determination that the numeric criteria are necessary in California to protect human health and the environment. The rule fills a gap in California water quality standards that was created in 1994 when a state court overturned the state's water quality control plans containing water quality criteria for priority toxic pollutants. Thus, the state of California has been without numeric water quality criteria (which is required by the CWA) for many priority toxic pollutants, necessitating this action by USEPA. These federal criteria are legally applicable in the state of California for inland surface waters, enclosed bays, and estuaries for all purposes and programs under the CWA. USEPA and the State Water Resources Control Board (SWRCB) have the authority to enforce these standards, which are incorporated into the NPDES permits that regulate existing discharges in California.

STATE

PORTER COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Act is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and groundwater and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code Section 13000 et seq.), the policy of the State is as follows:

- That the quality of all the waters of the state shall be protected;
- That all activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason; and
- That the State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation.

As discussed in more detail below, the Porter-Cologne Act established nine RWQCBs, based on hydrogeologic barriers) and the SWRCB, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCBs' decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCBs have numerous NPS-related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

The RWQCBs regulate discharges under the Porter-Cologne Act primarily through issuance of NPDES permits and WDRs for point and nonpoint source discharges). Anyone discharging or proposing to discharge materials that could affect water quality (other than to a community sanitary sewer system regulated by an NPDES permit) must file a report of waste discharge.

The Porter-Cologne Act also implements many provisions of the CWA, such as NPDES permitting program. [CWA Section 401](#) gives the SWRCB the authority to review any proposed federally permitted or federally licensed activity that may impact water quality and to certify, condition, or deny the activity if it does not comply with state water quality standards.

The Porter-Cologne Act also requires adoption of water quality control plans (basin plans) that contain the guiding policies of water pollution management in California. A number of statewide water quality control plans have been adopted by the SWRCB. In addition, regional water quality control plans (basin plans) have been adopted by each of the RWQCBs and are updated as necessary and practical. These plans identify the existing and potential beneficial uses of waters of the state and establish water quality objectives to protect these uses. The basin plans also contain implementation, surveillance, and monitoring plans. Statewide and regional water quality control plans include enforceable prohibitions against certain types of discharges, including those that may pertain to nonpoint sources. Portions of water quality control plans, the water quality objectives and beneficial use designations, are subject to review by USEPA, when approved they become water quality standards under the CWA.

REGIONAL WATER QUALITY CONTROL BOARDS

As a result of the Porter-Cologne Water Quality Control Act, the SWRCB and nine RWQCBs were established that exercise rulemaking and regulatory activities by basin. Each RWQCB conducts a broad range of activities to protect ground and surface water resources within their respective jurisdictions. The purpose of the RWQCBs is “to preserve, enhance, and restore the quality of California’s water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations.” Each board has seven part-time board members, appointed by the Governor, who make critical decisions including setting water quality standards, issuing permits, and determining and enforcing compliance. Furthermore, each RWQCB completes, reviews, and updates a Basin Plan, designed specifically to each region’s climate and topography. Basin Plans are designed to preserve and enhance water quality, as well as protect the beneficial uses of all regional waters. Each Basin Plan designates beneficial uses, sets protection goals to comply with the state’s anti-degradation policy, and describes protection programs. By incorporating all applicable water rules and regulations, the Basin Plans serve as a resource for agencies involved with water, wastewater, discharge, environmental permitting, and resource management, as well as the public interested in local water quality issues. Seven of the nine RWQCBs (either wholly or in part) have jurisdiction that includes portions of the SCAG region as shown in **Map 3.10-6, Regional Water Quality Control Boards**:

- *Region 3—Central Coast RWQCB.* The Central Coast RWQCB jurisdiction includes Santa Clara (south of Morgan Hill), San Mateo (southern portion), Santa Cruz, San Benito, Monterey, Kern (small portions), San Luis Obispo, Santa Barbara, Ventura (northern portion) counties.
- *Region 4—Los Angeles RWQCB.* The Los Angeles RWQCB jurisdiction includes the coastal watersheds of Los Angeles and Ventura Counties, along with very small portions of Kern and Santa Barbara Counties.
- *Region 5—Central Valley RWQCB.* The jurisdiction of the Central Valley RWQCB includes a small portion of northern Ventura County.
- *Region 6—Lahontan RWQCB.* The jurisdiction of the Lahontan RWQCB extends from the Oregon border to the northern Mojave Desert and includes all of California east of the Sierra Nevada crest, including San Bernardino County and northeastern Los Angeles County.

- *Region 7—Colorado River RWQCB.* The Colorado River RWQCB jurisdiction includes Imperial, San Bernardino, Riverside, and San Diego counties.
- *Region 8—Santa Ana RWQCB.* The Santa Ana RWQCB jurisdiction includes Orange, Riverside, and San Bernardino counties.
- *Region 9—San Diego RWQCB.* The San Diego RWQCB includes San Diego, Imperial, and Riverside counties.

Water quality within the four hydrologic regions in the SCAG region (see Map 3.10-1) are regulated by the above-listed seven RWQCBs: The Central Coast, Los Angeles, Central Valley, Lahontan, Colorado River, Santa Ana and the San Diego RWQCB.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA)

On September 16, 2014, Governor Edmund G. Brown Jr. signed a three-bill package (Assembly Bill 1739 (Dickenson), and Senate Bills 1319 and SB 1168 (Pavley) known as the Sustainable Groundwater Management Act. The legislation allows local Groundwater Sustainability Agencies (GSAs) to manage groundwater in a sustainable manner and allows limited state intervention when necessary to protect groundwater resources (Assembly Bill 1739 (Dickenson), and Senate Bills 1319 and SB 1168 (Pavley). SGMA defined “sustainable groundwater management,” established a framework for local jurisdictions to develop plans, and implement strategies to sustainably manage groundwater resources, established basin prioritization (ranked from very low to high priority), and set a 20-year timeline for implementation. Basins are prioritized under the SGMA by DWR. All high- and medium-priority basins are required to prepare and implement a Groundwater Sustainability Plan (GSP) to return the groundwater basin to sustainable use. Within the SCAG counties, there are 27 GSAs in the process of returning the groundwater basins to the sustainable use of groundwater (DWR 2023a).

ADJUDICATED BASINS

When water users within a basin are in dispute over legal rights to the water, a court can issue a ruling known as an adjudication. Adjudications can cover an entire basin, a portion of a basin, or a group of basins and all non-basin locations between. The court decree will define the area of adjudication. The court typically appoints a watermaster to administer the court's decree. In basins or areas where a lawsuit is brought to adjudicate, the groundwater rights of all the overlies and appropriators are determined by the court. The court also decides:

- Who the water rights owners are
- How much groundwater those rights owners can extract
- How the groundwater area will be managed.

Similar to SGMA, the purpose of the adjudication is to sustainably manage the groundwater supplies within the particular basin. Within the SCAG region, there are 22 groundwater basins that are adjudicated (DWR 2023b).

COBEY-ALQUIST FLOODPLAIN MANAGEMENT ACT

The Cobey-Alquist Floodplain Management Act (California Water Code 8400-8415) and Executive Order B-39-77 support the NFIP. The Act encourages local governments to plan, adopt, and enforce land use regulations for floodplain management, to protect people and property from flooding hazards. The Act also identifies requirements that jurisdictions must meet to receive State financial assistance for flood control. Executive Order B-39-77 requires state agency compliance with good floodplain management practices.

CALIFORNIA COASTAL ACT

The California Coastal Act of 1976 (Coastal Act) (Pub. Res. Code §30000 et seq.) was enacted to establish policies and guidelines that provide direction for the conservation and development of the California coastline. The Coastal Act established the California Coastal Commission (CCC) and created a state and local government partnership to ensure that public concerns regarding coastal development are addressed. The basic goals of this program are to:

1. Protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources;
2. Ensure orderly, balanced utilization and conservation of coastal zone resources, taking into account the social and economic needs of the people of the state;
3. Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resource conservation principles and constitutionally protected rights of private property owners;
4. Ensure priority for coastal-dependent and coastal-related development over other development on the coast; and
5. Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

The CCC serves as the coastal management and regulatory agency with jurisdiction over the Coastal Zone (Public Resources Code Section 30103). The California Coastal Zone generally extends seaward 3 miles and inland anywhere from 0.5 miles to 5 miles. The CCC is responsible for assisting in the preparation, review, and certification of Local Coastal Programs/Local Coastal Plans (LCP), which are developed by municipalities for that portion of their jurisdiction that falls within the coastal zone. Following certification of the LCP, regulatory responsibility then is delegated to the local jurisdiction, although the CCC retains jurisdiction over the immediate shoreline.

California Coastal Act Chapter 3 contains Coastal Resources Planning and Management Policies. Policies include protection of certain water oriented recreational activities (Section 30220); minimizing the adverse effects of wastewater discharge, controlling runoff and preventing depletion of ground water supplies (Section 30231); and water supply and flood control through channelization, dams, or other substantial alternations (Section 30236).

LAKE OR STREAMBED ALTERATION PROGRAM

The California Department of Fish and Wildlife (CDFW) is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, California Fish and Game Code Section 1600 requires an entity to notify CDFW of any proposed activity that may substantially modify a river, stream, or lake. Notification is required by any person, business, state, or local government agency or public utility that proposes an activity that will:

- Substantially divert or obstruct the natural flow of any river, stream or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The notification requirement applies to any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water. If CDFW determines that the activity may substantially adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared.

STATEMENT OF POLICY WITH RESPECT TO MAINTAINING HIGH-QUALITY WATERS IN CALIFORNIA

California's antidegradation policy, formally known as the Statement of Policy with Respect to Maintaining High Quality Waters in California (SWRCB Resolution No. 68-16), restricts degradation of surface and ground waters. It protects waters where existing quality is higher than necessary for the protection of beneficial uses. Any actions with the potential to adversely affect water quality must (1) be consistent with maximum benefit to the people of the state, (2) not unreasonably affect present and anticipated beneficial use of the water, and (3) not result in water quality less than that prescribed in water quality plans and policies. Any actions that can adversely affect surface waters are also subject to the federal antidegradation policy (40 CFR Section 131.12) developed under the CWA.

NPDES GENERAL PERMITS

CONSTRUCTION GENERAL PERMIT

Construction associated with projects that would disturb more than one acre of land surface would be subject to the *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2022-0057-DWQ, NPDES No. CAS000002). The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the United States from construction sites that disturb 1 acre or more of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings and structures; and linear underground projects, including installation of roadways and utility lines.

The Construction General Permit requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving waters risk level reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, the construction projects could be subject to the following requirements:

- Effluent standards;
- Good site management "housekeeping;"
- Non-stormwater management;
- Erosion and sediment controls;
- Run-on and runoff controls;
- Inspection, maintenance, and repair; or
- Monitoring and reporting requirements.

The Construction General Permit requires the development and implementation of an SWPPP that includes specific BMPs designed to prevent sediment and pollutants from contacting stormwater from moving off site into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management and good housekeeping, and are intended to protect surface water quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

The SWPPP must be prepared before construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project area. The SWPPP must list BMPs and the placement of those BMPs that the applicant would use to protect stormwater runoff. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for “non-visible” pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, vehicle and equipment washing and fueling. The Construction General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site following construction).

In the Project area, the Construction General Permit is implemented and enforced by the local RWQCB, which administers the stormwater permitting program. Dischargers must electronically submit a notice of intent and permit registration documents to obtain coverage under this Construction General Permit. Dischargers are to notify the RWQCB of violations or incidents of non-compliance and submit annual reports identifying deficiencies in the BMPs and explaining how the deficiencies were corrected. The risk assessment and SWPPP must be prepared by a State Qualified SWPPP Developer, and implementation of the SWPPP must be overseen by a State Qualified SWPPP Practitioner. A legally responsible person, who is legally authorized to sign and certify permit registration documents, is responsible for obtaining coverage under the permit.

Also note that the State of California Department of Transportation (Caltrans) Statewide Stormwater Permit, described below in the Municipal Stormwater Program, requires Caltrans projects to meet the same requirements as any other construction site in the state (i.e., Caltrans must file for coverage of each of its construction projects under the Construction General Permit, which regulates stormwater runoff from construction sites.

INDUSTRIAL GENERAL PERMIT

The Statewide General Permit for Storm Water Discharges Associated with Industrial Activities, Order 2014-0057-DWQ, NPDES Permit No. CAS000001, as amended in 2015 and 2018 (Industrial General Permit or IGP) implements the federally required stormwater regulations in California for stormwater associated with industrial activities discharging to waters of the United States. The IGP is called a general permit because many industrial facilities are covered by the same permit but comply with its requirements at their individual industrial facilities. The SWRCB and RWQCBs (collectively, the Water Boards) implement and enforce the IGP.

MUNICIPAL STORMWATER PROGRAM

MUNICIPALITIES

The Municipal Storm Water Program regulates stormwater discharges from municipal separate storm sewer systems (MS4s) throughout California. Pursuant to the Federal Water Pollution Control Act (CWA) Section 402(p), stormwater permits are required for discharges from an MS4 serving a population of 100,000 or more. The Municipal Storm Water Program manages the Phase I Permit Program (serving municipalities over 100,000 people), the Phase II Permit Program (for municipalities less than 100,000), and the Caltrans Stormwater Permit (which is also an MS4 permit covering operations), described further below. The MS4 permits require counties and cities (i.e., the permittee) to implement development planning guidance and control measures that control and mitigate stormwater quality and runoff volume impacts to receiving waters as a result of new development and redevelopment. Counties and cities also are required to implement other municipal source detection and elimination programs, as well as maintenance measures. Counties and cities are required to develop and implement development standards, also known as BMPs and low-impact development (LID)/post-construction standards to guide projects during the entitlement stage, CEQA process, and the development plan review process. These treatment control BMPs must be sufficiently designed and constructed to treat or retain the greater of an 85th percentile rain event or first 0.75 inch of stormwater runoff from a storm event.

Projects are required to a hydrology or drainage plan to describe the project design features to be constructed and operated to control discharges of sediment and other pollutants from point sources during operations. The stormwater management goals are that the runoff volume and rate must be same or less as existing conditions, the infiltration volume must be same or more unless site condition are not conducive to infiltration, and stormwater must be treated prior to being discharged from the project site. BMPs to collect, control, treat and infiltrate stormwater may include infiltration galleries, bioswales, bioretention basins, storage and reuse of stormwater for landscaping, and others. To address water quality, the project design must be able to capture and treat the volume from 85th percentile storm event³ or 0.75-inch storm event. To address erosion, the project design must be able to capture and treat the volume from 50-year design storm event (Q50).⁴ To address impervious surfaces that interfere with infiltration of stormwater, the project design must reduce the percent impervious surface or manage the runoff rate to not exceed capacity of the existing stormwater system.

CALTRANS

Caltrans is responsible for the design, construction, management, and maintenance of the State highway system, including freeways, bridges, tunnels, Caltrans' facilities, and related properties, and is subject to the permitting requirements of CWA Section 402(p). Caltrans' discharges consist of stormwater and non-stormwater discharges from state-owned rights-of-way. On June 22, 2022, the SWRCB adopted Order 2022-0033-DWQ, NPDES Permit CAS000003, that regulates Caltrans' statewide stormwater discharges and conditionally exempt non-stormwater discharges from its MS4. The Order requires Caltrans to comply with existing TMDLs established by the USEPA or adopted by the RWQCBs, identifying stormwater discharges from the Caltrans transportation system as a source of pollutants causing receiving water impairment, as listed in Attachment D to the Order.

The Caltrans Stormwater Permit requires development of a program for communication with local jurisdictions, and coordination with other MS4 programs where those programs overlap geographically with Caltrans facilities.

³ The 85th percentile storm event for a particular location is the amount of rainfall equal to or greater than that produced by 85 percent of storms that have occurred in that locale over a specified duration (i.e., 24 hours or 1 hour), based upon long-term historical records of local storm events.

⁴ A 50-year or Q50 storm event has a 1 in 50, or 2 percent, chance of occurring in a year.

As part of the permit, Caltrans is required to create and annually update a stormwater management plan (SWMP) that is used to outline the regulation of pollutant discharge caused by current and future construction and maintenance activities. SWMP requirements apply to discharges from Caltrans stormwater conveyances, including catch basins and drain inlets, curbs, gutters, ditches, channels, and storm drains. The SWMP applies to discharges consisting of stormwater and non-stormwater resulting from the following:

- Maintenance and operation of state-owned highways, freeways, and roads
- Maintenance facilities
- Other facilities with activities that have the potential for discharging pollutants
- Permanent discharges from subsurface dewatering
- Temporary dewatering
- Construction activities

Caltrans' SWMP describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters.

CALIFORNIA GREEN BUILDING STANDARDS CODE

California Green Building Standards Code (CALGreen) Chapters 4 and 5 include mandatory measures for residential and nonresidential development, respectively. Section 4.106.2 requires residential projects that disturb less than 1 acre and are not part of a larger common plan of development, manage stormwater drainage during construction through use of on-site retention basins, filtration systems where stormwater is conveyed to a public drainage system, and/or compliance with a stormwater management ordinance. Section 5.106.1 requires newly constructed nonresidential projects and additions of less than one acre to prevent the pollution of stormwater runoff because of construction through compliance with a local ordinance or implementing BMPs that address soil loss and good housekeeping to manage equipment, materials, and wastes. California Fish and Game Code – Section 1602.

CDFW is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the Fish and Game Code (Section 1602) requires an entity to notify CDFW of any proposed activity that may substantially modify a river, stream, or lake. Notification is required by any person, business, state or local government agency, or public utility that proposes an activity that will:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The notification requirement applies to any work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel. This includes ephemeral streams, desert washes, and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

CALIFORNIA OCEAN PLAN

The California Ocean Plan establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the state's coastal waters. The plan applies to point and nonpoint source discharges. Both the SWRCB and the six coastal RWQCBs implement and interpret the California Ocean Plan. The California Ocean Plan identifies the applicable beneficial uses of marine waters. These beneficial uses include preservation and enhancement of designated Areas of Special Biological Significance, rare and endangered species, marine habitat, fish migration, fish spawning, shellfish harvesting, recreation, commercial and sport fishing, mariculture, industrial water supply, aesthetic enjoyment, and navigation.

The California Ocean Plan establishes a set of narrative and numerical water quality objectives to protect beneficial uses. These objectives are based on bacterial, physical, chemical, and biological characteristics as well as radioactivity. The water quality objectives in Table 1 (formerly Table B) of the California Ocean Plan apply to all receiving waters under the jurisdiction of the plan and are established for the protection of aquatic life and for the protection of human health from both carcinogens and noncarcinogens. Within Table 1 there are 21 objectives for protecting aquatic life, 20 for protecting human health from noncarcinogens, and 42 for protecting human health from exposure to carcinogens. The Ocean Plan also includes an implementation program for achieving water quality objectives. Effluent limitations are established for the protection of marine waters.

CALIFORNIA STATE LANDS COMMISSION

The California State Lands Commission (SLC) provides stewardship of California's public trust lands, waterways, and resources through economic development, protection, preservation, and restoration. The SLC is tasked with public land management and resource protection to ensure the future quality of the environment and balanced use of the lands and resources entrusted to its care. The State's public trust lands include tidelands, navigable waterways, and submerged coastal lands extending to a distance of three nautical miles, as well as the waters and underlying beds of more than 120 rivers, lakes, streams, and sloughs.

The California SLC regulates the use of tidelands and submerged lands under its jurisdiction to ensure that proposed uses of these lands are consistent with the Public Trust Doctrine principle that certain resources are preserved for public use. Generally, the SLC has jurisdiction over land below mean high tide. Public and private entities may apply to the SLC for land leases or permits on State lands for many purposes including dredging among others. California Government Code Section 65940 describes the degree of specificity and contents required for a surface land lease application.

CALIFORNIA GEOLOGICAL SURVEY TSUNAMI INUNDATION MAPS

The California Geological Survey (CGS) provides geologic and seismic expertise to the public, other State government offices, and local government agencies (cities and counties). CGS is working closely with the California Emergency Management Agency (Cal EMA) and the University of Southern California Tsunami Research Center to produce statewide tsunami inundation maps for California. These maps are used by coastal communities to produce emergency evacuation plans. The Cal EMA provides generalized maps for projected tsunami inundation to coastal government agencies for emergency planning purposes. These maps are used as a basic guideline for what areas are prone to tsunami inundation.

CALIFORNIA COASTAL COMMISSION SEA-LEVEL RISE POLICY GUIDANCE

The California Natural Resources Agency and California Ocean Protection Council have developed Sea-Level Rise Policy Guidance intended to help local governments, permit applicants, and other interested parties address the challenges presented by sea-level rise in California's coastal zone (California Natural Resources Agency and California Ocean Protection Council 2018). The Sea-Level Rise Policy Guidance outlines the types of information, analysis, and design considerations that the agency's staff requires to determine whether shoreline projects conform to the above-listed Coastal Act policies. Specifically, the Sea-Level Rise Policy Guidance provides step-by-step guidance on how to address sea-level rise in new and updated LCPs and Coastal Development Permits (CDP) according to the policies of the California Coastal Act. LCPs and the CDP processes are the fundamental land use planning and regulatory governing mechanisms in the coastal zone. While it is advisory, the data requirements, resource considerations, projections for sea-level rise, alternatives analyses, and monitoring requirements outlined in detail in the Sea-Level Rise Policy Guidance represent information that would likely be required to produce as part of the evaluation of coastal projects in conformance with Coastal Act Sections 30235 and 30253. Specifically, the Sea-Level Rise Policy Guidance outlines that projects will need to be planned, located, designed, and engineered for the rising water levels and associated impacts that might occur over the life of the development. In addition, project planning should anticipate the landward migration, erosion, and natural adaptation of coastal resources (beaches, access, etc.) due to future sea-level rise conditions in order to avoid future impacts to those resources from the new development.

The most recent update in 2018 of the Sea-Level Rise Guidance aims to respond to the needs for guidance that can help cities, counties and the State prepare for, and adapt to sea-level rise. The 2018 update provides a science-based methodology for state and local governments to analyze and assess the risks associated with sea-level rise, and to incorporate sea-level rise into their planning, permitting, and investment decisions. The Guidance expands the preferred coastal adaptation planning approaches, incorporating existing law, expressed policy preferences by the Governor and Legislature, and the goal of fostering consistency across coastal and ocean government agencies. Some recommendations include protection of coastal habitats and public access, adaptation strategies that prioritize protection of vulnerable communities, and adaptive capacity should be built into design and planning.

CALIFORNIA STORMWATER QUALITY ASSOCIATION BMP HANDBOOKS

The California Stormwater Quality Association (CASQA) is a professional member association dedicated to the advancement of stormwater quality management through collaboration, education, implementation guidance, regulatory review, and scientific assessment. CASQA's membership comprises a diverse range of stormwater quality management organizations and individuals, including cities, counties, special districts, industries, and consulting firms throughout the state. CASQA develops and publishes four BMP Handbooks. The New Development and Redevelopment Handbook provides guidance on developing project specific SWMPs, including selection and implementation of BMPs, for a particular development or redevelopment project.

REGIONAL

Each RWQCB is required to prepare, update, and implement a regional water quality control plan, more commonly referred to as a basin plan, for their respective region to describe how the quality of the surface and ground waters in their region should be managed to provide the highest water quality reasonably possible. The websites for each RWQCB provide each region basin plan. The Basin Plans within the SCAG region are summarized below.

WATER QUALITY CONTROL PLAN FOR THE CENTRAL COASTAL BASIN

The Water Quality Control Plan for the Central Coastal Basin, or Basin Plan, identifies how the quality of the surface and ground waters in the Central Coast Region should be managed to provide the highest water quality reasonably possible. This basin plan lists the various water uses. Second, it describes the water quality which must be maintained to allow those uses. It then describes the programs, projects, and other actions which are necessary to achieve the standards established in this plan. It summarizes SWRCB and RWQCB plans and policies to protect water quality and describes statewide surveillance and monitoring programs as well as regional surveillance and monitoring programs. The Regional Board implements the basin plan by issuing and enforcing WDRs to individuals, communities, or businesses whose waste discharges can affect water quality. These requirements can be either state WDRs for discharges to land, or federally delegated NPDES permits for discharges to surface water. Methods of treatment are not specified. When such discharges are managed so that (1) they meet these requirements, (2) water quality objectives are met, and (3) beneficial uses are protected and water quality is controlled. The basin plan is also implemented by encouraging water users to improve the quality of their water supplies, particularly where the wastewater they discharge is likely to be reused. Public works or other projects which can affect water quality are reviewed and their impacts identified. Proposals which implement or help achieve the goals of the basin plan are supported; the Regional Board makes water quality control recommendations for other projects.

WATER QUALITY CONTROL PLAN FOR THE LOS ANGELES REGION

The LA RWQCB has prepared a Water Quality Control Plan for the Los Angeles Region. This basin plan encompasses all coastal drainages flowing to the Pacific Ocean between Rincon Point (on the coast of western Ventura County) and the eastern Los Angeles County line, as well as the drainages of five coastal islands (Anacapa, San Nicolas, Santa Barbara, Santa Catalina, and San Clemente). In addition, the Los Angeles region includes all coastal waters within three miles of the continental and island coastlines. As the eastern boundary, formed by the Los Angeles County line, departs somewhat from the hydrologic divide, the Los Angeles and Santa Ana regions share jurisdiction over watersheds along their common border.

This basin plan assigned beneficial uses to surface and groundwater such as municipal water supply and water-contact recreation to all waters in the basin. It also set water quality objectives, subject to approval by the USEPA, intended to protect designated beneficial uses. These objectives apply to specific parameters (numeric objectives) and general characteristics of the water body (narrative objectives). An example of a narrative objective is the requirement that all waters must remain free of toxic substances in concentrations producing detrimental effects upon aquatic organisms. Numeric objectives specify concentrations of pollutants that are not to be exceeded in ambient waters of the basin. The Los Angeles RWQCB is involved in the regulation of several activities that are relevant to the consideration of the basin plan:

- Prepares, monitors compliance with, and enforces WDRs, including NPDES permits;
- Implements and enforces local stormwater control efforts;
- Enforces water quality laws, regulations, and WDRs; and
- General Construction Activity Stormwater Discharges

Stormwater discharges that are composed entirely of runoff from qualifying construction activities may require regulation under the General Construction Activity Storm Water Permit issued by the SWRCB. Construction activities that qualify include clearing, grading, excavation, reconstruction, and dredge-and-fill activities that result

in the disturbance of at least one acre and less than five acres of total land area. The evaluation of the plan does not generate the need for compliance with the Construction General Permit. The development of single-family residences would require permit coverage if the development disturbs greater than 1 acre of land. Additionally, the plan would require the consideration of a Standard Urban Stormwater Management Plan (SUSMP) as part of compliance with the NPDES General Construction Activity Storm Water Permit to reduce water quality impacts to the maximum extent practicable. A SUSMP is a report that includes one or more site maps, an identification of construction activities that could cause pollutants to enter the stormwater, and a description of measures or BMPs to control these pollutants to the maximum extent practicable.

WATER QUALITY CONTROL PLAN FOR THE LAHONTAN REGION

This basin plan for the Lahontan Region sets forth water quality standards for the surface and ground waters which include both designated beneficial uses of water and the narrative and numerical objectives which must be maintained or attained to protect those uses. It identifies general types of water quality problems, which can threaten beneficial uses. It then identifies required or recommended control measures for these problems. The plan also summarizes past and present water quality monitoring programs, and identifies monitoring activities, which should be carried out to provide the basis for future basin plan updates and for WDRs or conditional waivers.

Additionally, the Lahontan basin plan implements a number of state and federal laws, the most important of which are the federal CWA and the State Porter-Cologne Water Quality Control Act. Other pertinent federal laws include the Safe Drinking Water Act, Toxic Substances Control Act, Resource Conservation and Recovery Act, and Endangered Species Act, and the Comprehensive Response, Compensation, and Liability Act (CERCLA or "Superfund") and Superfund Amendment and Reauthorization Act (SARA). Other applicable California laws include the Health and Safety, Fish and Game, and Food and Agriculture Codes.

WATER QUALITY CONTROL PLAN FOR THE COLORADO RIVER BASIN

The intent of this basin plan is to provide definitive guidelines and give direction to the full scope of activities that serve to optimize the beneficial uses of the state waters within the Colorado River Basin by preserving and protecting the quality of these waters. Water uses and water benefits vary. Water quality is an important factor in determining use and benefit. For example, drinking water must be of higher quality than the water used to irrigate pastures. Both are beneficial water uses, but the quality requirements for irrigation water are different from those for drinking water. The basin plan recognizes the variations of water quality and water uses. The basin plan lists and defines the various beneficial water uses (Chapter 2). It describes the water quality which must be maintained to support such uses (Water Quality Objectives, Chapter 3). The section on implementation (Chapter 4) describes the programs, projects and other actions that are necessary to achieve the standards established in this basin plan. Plans, Policies, and Issues (Chapter 5), summarize the various plans and policies which protect water quality. This chapter also describes water quality issues which require special attention. Surveillance and Monitoring (Chapter 6), describes activities within the Colorado River Basin Region related to surveillance, monitoring, assessment, lab support, and quality assurance and quality control.

WATER QUALITY CONTROL PLAN FOR THE SANTA ANA RIVER BASIN

This basin plan establishes water quality standards for the ground and surface waters of the region. The term "water quality standards," as used in the federal CWA, includes both the beneficial uses of specific waterbodies and the levels of quality that must be met and maintained to protect those uses. The plan describes actions by the Regional Board and others that are necessary to achieve and maintain water quality standards. The Regional Board

regulates waste discharges to minimize and control their effect on the quality of the region's ground and surface water. Permits are issued under several programs and authorities. The terms and conditions of these discharge permits are enforced through a variety of technical, administrative, and legal means. Water quality problems in the region are listed in the plan, along with the causes, where they are known. For water bodies with quality below the levels necessary to allow all the beneficial uses of the water to be met, plans for improving water quality are included.

WATER QUALITY CONTROL PLAN FOR THE SAN DIEGO BASIN

The San Diego Regional Board's basin plan is designed to preserve and enhance water quality and protect the beneficial uses of all regional waters. Specifically, the plan (1) designates beneficial uses for surface and ground waters, (2) sets narrative and numerical objectives that must be attained or maintained to protect the designated beneficial uses and conform to the state's antidegradation policy, (3) describes implementation programs to protect the beneficial uses of all waters in the region, and (4) describes surveillance and monitoring activities to evaluate the effectiveness of the plan (California Water Code Sections 13240–13244, Section 13050(j)). Additionally, the plan incorporates by reference all applicable state and regional board plans and policies.

SCAG'S WATER ACTION RESOLUTION SCAG RESOLUTION NO. 22-647-3 (DROUGHT AND WATER SHORTAGE EMERGENCY)

The Resolution states that "SCAG shall identify, recommend and integrate into Connect SoCal 2024 policies and strategies to align investments in water infrastructure with housing needs and the adopted growth forecast and development pattern.

Whereas, SCAG has adopted mitigation measures for its most recent long-range plan, Connect SoCal 2020, related to coordinating and working with local jurisdictions and water agencies; encouraging regional-scale planning for improved stormwater management, groundwater recharge, wastewater and stormwater management, water quality management, pollution prevention, and drainage patterns; and fostering the implementation of urban greening, greenbelts, and community separator land use strategies that promote improved water quality, groundwater recharge, watershed health, reduced urban runoff, stormwater and rainwater collection."

LOCAL

IMPERIAL COUNTY GENERAL PLAN

The Imperial County General Plan provides specific goals and policies related to maintaining the viability of the Salton Sea and other surface water resources in the county.

- **Goal 2:** Long-term viability of the Salton Sea, Colorado River, and other surface waters in the County will be protected for sustaining wildlife and a broad range of ecological communities.
 - **Objective 2.1:** The continued viability of the agricultural sector as an important source of surface water for the maintenance of valuable wildlife and recreational resources in the County.
 - **Objective 2.2:** A balanced ecology associated with the riparian and ruderal biological communities important as breeding and foraging habitats for native and migratory birds and animals occurring within the County.
 - **Objective 2.3:** Preservation of riparian and ruderal habitats as important biological filters as breeding and foraging habitats for native and migratory birds and animals.

LOS ANGELES COUNTY GENERAL PLAN

As part of the Conservation and Natural Resources Element of the 2040 General Plan Update, the Board of Supervisors of the County of Los Angeles has adopted three goals for water quality initiatives related to hydrology and water quality and two goals related to watershed and river master plans:

WATER QUALITY INITIATIVES

- Support multi-benefit outcomes, such as water quality benefits arising from ecosystem restoration efforts, and identify, attract, and create funds and resources to implement this initiative.
- Participate in enhanced watershed management programs and watershed management programs in coordination with other agencies throughout Los Angeles County.
- Participate in coordinated integrated watershed monitoring plans in coordination with other agencies throughout Los Angeles County.

WATERSHED AND RIVERS MASTER PLANS

- Participate with stakeholders in the preparation of watershed management plans in response to the NPDES MS4 Permit by promoting multi-benefit outcomes, including, but not limited to new public access to natural resources, new recreational opportunities, enhanced aquatic habitats, and restored natural features, where appropriate, while maintaining necessary levels of flood protection.
- Identify, attract, and create funds and resources to implement these plans.

ORANGE COUNTY GENERAL PLAN

In the Orange County region, the protection of water quality is a major concern. The need to maintain safe water quality may constrain the development of energy resources, from methane (landfills) and geothermal sources. At a minimum, water quality concerns will need to be considered during the process of developing these resources and water intensive resources such as agriculture.

Development of land and the increase in population density has also created new sources of non-stormwater discharges and pollutants in stormwater discharges. The San Diego and Santa Ana RWQCBs require that water quality and watershed protection principles are considered as part of land use planning and development review.

DRAINAGE AREA MANAGEMENT PLAN

The specific water pollutant control elements of the Orange County Stormwater Program are documented in the 2003 Drainage Area Management Plan (DAMP) which is the County of Orange, incorporated cities of Orange County, and Orange County Flood Control District's (collectively referred to as Permittees) primary policy, planning and implementation document for municipal NPDES Stormwater Permit compliance. The DAMP was prepared and is periodically updated using a consensus building process that involving public and private sector input and public review through the CEQA process.

The DAMP describes the agreements, structures, and programs that:

- Provide the framework for the program management activities and plan development (DAMP Section 2.0 and Section 3.0);

- Provide the legal authority for prohibiting unpermitted discharges into the storm drain system and for requiring BMPs in new development and significant redevelopment (DAMP Section 4.0);
- Improve existing municipal pollution prevention and removal BMPs to further reduce the amount of pollutants entering the storm drain system (DAMP Section 5.0);
- Educate the public about the issue of urban stormwater and non-stormwater pollution and obtain their support in implementing pollution prevention BMPs (DAMP Section 6.0);
- Ensure that all new development and significant redevelopment incorporates appropriate Site Design, Source Control and Treatment Control BMPs to address specific water quality issues (DAMP Section 7.0);
- Ensure that construction sites implement control practices that address control of construction related pollutants discharges including erosion and sediment control and on-site hazardous materials and waste management (DAMP Section 8.0);
- Ensure that existing development will address discharges from industrial facilities, selected commercial businesses, residential development and common interest areas/homeowner associations (Note: The San Diego permit explicitly outlines a residential component, but the Santa Ana permit is more general about residential requirements) (DAMP Section 9.0);
- Detect and eliminate illegal discharges/illicit connections to the municipal storm drain system (DAMP Section 10.0);
- Identify impacted receiving waters and produce environmental quality information to direct management activities, including prioritization of pollutants to support the development of specific controls to address these problems (DAMP Section 11.0); and
- Assess watersheds and manage urban runoff on a watershed basis (DAMP Section 12.0).

One of the major challenges for the Permittees in updating the programs was the reconciliation between the two Regional Board permits and the resulting program requirements that have significant differences for the first time. As a result of this separation, the 2003 DAMP now includes local implementation plans (LIP)—also termed Jurisdictional Urban Runoff Management Programs—in the San Diego Regional Board Third Term Permit). The LIPs were created to assist each Permittee in implementing an increasingly complex program within its jurisdiction while maintaining a single policy document that addresses two sets of permit requirements. The LIPs were completed by the San Diego Permittees in February 2003 and by the Santa Ana Permittees in June 2003.

The requirement to overlay separate, but nonetheless, highly interrelated water quality protection and planning processes based on hydrologic rather than political boundaries was addressed through the creation of watershed action plans (WAP). A WAP (see DAMP Appendix D) was created for each of the six watersheds under the jurisdiction of the San Diego Regional Board in August 2003. A model WAP was created for the Newport Bay watershed during 2005-06 and draft WAPs are being prepared for the other watersheds in the area of Orange County under the jurisdiction of the Santa Ana Regional Board.

RIVERSIDE COUNTY GENERAL PLAN

The Riverside County General Plan specifically addresses hydrology and water quality in four categories: water resources, water quality (including groundwater quality), floodplain management, and wetlands.

WATER RESOURCES

The General Plan acknowledges that contamination from natural or manufactured sources has reduced groundwater quality such that its use requires treatment. Management of the amount of water available (local and imported) and its quality, is identified as an important response to the gap between supply and demand in Riverside County. The General Plan provides policies that seek to protect and enhance the water resources in the county. These policies address broad water planning issues, and the relationship of land use decisions to water issues.

WATER QUALITY

The General Plan recognizes BMPs established by the three applicable RWQCBs, Regions 7, 8, and 9 to provide state-level water quality policy and NPDES as effective means of managing water quality problems that have occurred in Riverside County. Such problems are related to inadequate subsurface sewage disposal, waste disposal management of the Santa Ana River, agriculturally related problems such as runoff in the western county and increasing salinity of the desert groundwater basins, sediment buildup of water bodies from construction-related erosion, lake water quality problems, and pollution due to urban stormwater system runoff.

FLOODPLAIN AND RIPARIAN AREA MANAGEMENT

The intent of the county is to sustain living riparian habitats to the maximum extent possible, recognizing that flooding is part of the dynamic nature of healthy rivers and ecosystems. High flows and flood waters are needed to cleanse the channels of accumulated debris, build stream banks, import gravels for aquatic life, thin riparian forests and create riparian habitat. The open space of floodplains adjacent to rivers and streams helps store and slowly release floodwaters, thus reducing flood flow and peaks and their subsequent impacts during small and frequent flood events. Further, riparian habitat within floodplains is of great value to resident and migratory animal species, as it provides corridors and linkages to and from the biotic regions of the county. The numerous essential habitat elements provided by the remaining riparian corridors of Riverside County make them a significant contributor to wildlife habitat throughout the county.

WETLANDS

The General Plan provides specific policies for the protection of wetlands including the requirement to ensure compliance with CWA Section 404 in terms of wetlands mitigation policies and policies concerning fill material in jurisdictional wetlands during development review and approval process; preservation of buffer zones around wetlands where feasible and biologically appropriate; and consideration of wetlands for use as natural water treatment areas that will result in improvement of water quality.

SAN BERNARDINO COUNTY GENERAL PLAN

San Bernardino County has established goal and policies to ensure coordination and cooperation with governmental agencies at all levels to ensure safe, reliable, and high-quality water supply for all residents and ensure prevention of surface and ground water pollution. The County General Plan provides specific policies for adherence to federal and state water quality standards for surface and groundwater and wastewater discharge requirements in the review of development proposals that relate to type, location and size of the project to safeguard public health. Similarly, the County General Plan specifies the need to work with the RWQCBs to establish uniform criteria for appropriate sewerage options for new development. The County General Plan further directs cooperation with state, regional, and responsible authorities to expand water sampling programs to

determine ambient groundwater quality conditions affecting public, agricultural, and private wells. Identify the sources, extent, and types of organic and inorganic groundwater contaminants, and evaluation of their impacts on groundwater resources. The County General Plan calls for the prevention of surface and groundwater pollution through continued cleanup of contaminated waters and watersheds.

VENTURA COUNTY GENERAL PLAN

The Ventura County General Plan provides specific goals and policies related to the inventory and monitoring of water quantity and quality to facilitate effective management of the resources. The Ventura County General Plan has identified ten specific programs to support achievement of the goals and policies. The programs include:

- Support of the Seawater Intrusion Abatement Project;
- Enforcement of Chapter 70 (Excavation and Grading) of the Uniform Building Code, as incorporated by reference in and amended by the Ventura County Building Code, to ensure that any proposed grading in a waterway or wetland is adequately investigated and that any development incorporates appropriate design provisions to protect waterways or wetlands;
- Support the Fox Canyon Groundwater Management Agency Plan for both the Upper and Lower Aquifer Systems;
- Continued coordination with water districts and other appropriate agencies to establish a data base on actual available supply, projected use factors for types of land use and development, and threshold limits for development within available water resources;
- Planning Division will continue to promote of the efficient use of water through the Landscape Design Criteria Program;
- Cooperation between the Public Works Agency and the Environmental Health Division, to pursue the use of reclaimed water for agricultural irrigation;
- Continued monitoring, inspection and regulation of underground storage tanks;
- Identification of waste disposal sites and seek to mitigate impacts to water resources; and consideration of the Board of Supervisors of a Countywide water conservation retrofit program to fund the installation of water conservation fixtures) for businesses and residents located within Ventura County.

CITY GENERAL PLAN AND ORDINANCES

In accordance with California Government Code Section 65560(g), all cities are required to have a conservation element as part of their General Plans. The conservation element provides goals and policies related to conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources. One of the six required aspects of the open space element is for planning, conservation and management of open space for the preservation of natural resources, including habitat for fish and wildlife species; areas required for ecologic and other scientific study purposes; rivers, streams, bays and estuaries; and coastal beaches, lakeshores, banks of rivers and streams, and watershed lands. In addition, many cities have ordinances related to protection, conservation and management of natural water resources consistent with the applicable beneficial uses stipulated in the applicable RWQCB basin plan.

Furthermore, some local jurisdictions have started to address climate change impacts such as sea-level rise in policy documents. For example, the City of Long Beach developed a draft of its Climate Action and Adaptation Plan (CAAP) to help reduce GHG, prepare the community for the impacts of climate change, improve the quality of life, and enhance economic vitality. The CAAP provides a framework for creating or updating policies, programs, practices, and incentives to reduce the City's GHG footprint, and ensure the community and physical assets are better protected from the impacts of climate change.

LOW-IMPACT DEVELOPMENT

Many local jurisdictions in the SCAG region, including the Counties of Imperial, Los Angeles, Orange, Riverside, and San Bernardino, Ventura as well as most cities including the City of Los Angeles, have either incorporated LID standards into their respective County MS4 permit requirements or have adopted jurisdiction-specific ordinances to require implementation of LID practices and appropriate BMPs for all new development projects. The overall intent of LID requirements is to mimic pre-development runoff conditions on a given project site using various design measures and BMPs such that the rate, volume, and pollutant load of stormwater flows leaving the site are no greater than prior to project implementation. This is typically achieved through on-site capture and retention (or infiltration where feasible) of stormwater flows, on-site treatment, and controlled release of the treated stormwater at a rate less than or equal to pre-project flows. Each jurisdiction is subject to various requirements for residential and non-residential development types and provides guidance for project applicants regarding potential BMPs and design options to achieve LID compliance for a range of site conditions, in order to provide flexibility in how the requirements are met for any given project.

3.10.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that adoption and/or implementation of the Plan could result in significant adverse impacts to hydrology and water resources, if the Plan would result in any of the following:

- Violate any water quality standards or WDRs or otherwise substantially degrade surface or groundwater quality;
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Plan may impede sustainable groundwater management of the basin;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - Result in substantial erosion or siltation on- or off-site;
 - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
 - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
 - impede or redirect flood flows;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation; or

- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis for hydrology and water quality considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

The methodology for determining the significance of the Plan's impacts to wildfire response and related hazards and infrastructure compares the existing (2022) conditions to future (2050) conditions. The environmental analysis of the potential impacts related to hydrology and water quality from Connect SoCal 2024 based on information provided by SCAG and a review of available literature and database information.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan. See CEQA Guidelines Section 15126.4(a)(1)(B). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. Finally, if SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT HYD-1 **Potential to violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.**

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan has the potential to result in increased pollutant loads in stormwater flows during construction activities and long-term operations. Connect SoCal 2024 would increase the amount of urbanized land and densify existing urbanized areas in the SCAG region by encouraging development within priority development areas (PDAs) and discouraging development in green region resource areas (GRRAs). Plan policies and implementation strategies encourage coordinating and working with local jurisdictions and water agencies. In addition, the Plan encourages regional-scale planning for improved stormwater management, groundwater recharge, wastewater and stormwater management, water quality management, pollution prevention, and drainage patterns; and fostering the implementation of urban greening, greenbelts, and other community land use strategies that promote improved water quality, groundwater recharge, watershed health, reduced urban runoff, stormwater, and rainwater collection. Nonetheless, construction activities for projects implemented as a

result of the Plan could potentially violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

Construction activities for projects implemented as a result of the Plan would involve ground-disturbing earthwork that could include removal of existing buildings and paved areas, soil excavation and backfilling, trenching, and grading. These activities could increase the susceptibility of soils on project sites to erosion by water (i.e., stormwater) or wind. During construction, heavy equipment such as bulldozers, graders, earth movers, heavy trucks, trenching equipment, and other machinery is anticipated to be used. Such machinery could contribute pollutants to stormwater runoff in the form of sediment, fuels, oil, lubricants, hydraulic fluid, or other contaminants. Additionally, site-specific work could result in conditions of runoff during storm events. Sediment, silt, construction debris, and vehicle-related pollutants, if mobilized during construction, could be transported to receiving waters. In the absence of runoff controls, exceedances of water quality standards could result. If not controlled and managed, the impact of soil erosion and other construction-related pollutants could be significant.

As discussed above in Section 3.10.2, *Regulatory Framework*, many jurisdictions in the region, such as the County of Los Angeles and City of Los Angeles, have strict guidelines requiring no net increase in runoff during construction and operation. These LID standards help to reduce the potential for contaminated runoff and would reduce impacts associated with urban runoff for projects of all sizes in the region when properly implemented. Also, as discussed above, for projects where construction activities would disturb more than one acre of land, projects are also subject to State Construction General Permit requirements, which require the preparation and implementation of a SWPPP. The SWPPP would include BMPs designed to control and reduce soil erosion and off-site transport of construction-related pollutants. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fences and fiber rolls to trap sediment, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, vehicle and equipment washing, and fueling. In addition, all state projects for which Caltrans is the sponsor agency must comply with the Caltrans Stormwater Permit that regulates all stormwater discharges from Caltrans-owned conveyances, maintained facilities, and construction activities. The Caltrans Stormwater Permit also requires the implementation of similar BMPs. The inclusion of runoff control measures during construction activities associated with projects under the Plan would generally preclude substantial adverse impacts to water quality.

Overall, given that the specific details and locations of individual projects under the Plan are not known at this time, there could be unforeseen circumstances that could result in some projects not being covered under previously discussed regulations. These types of impacts occur with existing development and would continue to be a possibility for projects under Connect SoCal 2024. For a construction example, a project might disturb less than one acre of ground and therefore not be required to obtain coverage under the state Construction General Permit but would instead rely solely on local LID requirements, which may not be uniformly conditioned or implemented in some jurisdictions. In such cases, sediment and/or other pollutants from the construction site could run off into a surface water body and adversely affect water quality. As such, adverse impacts to water quality from construction activities could occur in numerous discrete locations throughout the region, and therefore such circumstances are considered reasonably foreseeable and could occur frequently enough that they would collectively constitute a significant adverse effect on water quality at a regional scale. As such, despite compliance with applicable regulatory requirements, construction-related water quality impacts could be significant requiring the consideration of mitigation measures.

Regarding long-term operational impacts, stormwater runoff from operation of projects under the Plan potentially contains pollutants common in urban and transportation runoff, including sediment, fuels and oils, metals, pesticides and herbicides, nutrients, and trash. Pollutants in stormwater runoff from urban development under the Plan would continue to have the potential to adversely impact water quality if the types and amounts are not adequately controlled or treated. As discussed above in Section 3.10.2, *Regulatory Framework*, stormwater runoff from urban uses would continue to be regulated under the Municipal Stormwater Program (i.e., the MS4 or Municipal Regional Permit or Caltrans Stormwater Permit depending on the project location). Project applicants would be required to submit project design plans to the appropriate regulatory agency to demonstrate that the operation of their project would comply with the applicable permit requirements. The requirements include capturing and treating stormwater prior to exiting the project site and designing the on-site stormwater facilities to not exceed the capacity of the local stormwater system into which the stormwater is discharged. BMPs included in site designs and plans for proposed projects would be reviewed by the relevant agency's engineering staff to ensure adequate treatment and design capacity prior to permit issuance. The review and permitting process would typically ensure that the permit's WDRs would not be violated during long-term operation of future projects. These operational BMPs would include stormwater collection and treatment systems with measures such as infiltration galleries, bioswales, bioretention basins, and storage and reuse of stormwater for landscaping irrigation. The implementation of BMPs required by the permits would help prevent substantial adverse impacts to water quality. Given compliance with existing permits and associated conditions, operation of projects implemented under the Plan would generally not be expected to violate any WDRs or otherwise substantially degrade water quality.

However, as is the case with construction-related impacts, it is acknowledged that there could be instances in which certain projects are not subject to stormwater permit requirements for long-term operation once constructed. For example, projects in rural areas may be located outside of areas covered under an existing municipal stormwater permit (i.e., MS4) such projects might not be designed to capture and treat stormwater runoff and thus could adversely affect water quality of nearby surface water bodies. While not typical, such circumstances are considered reasonably foreseeable and could occur frequently enough that they would collectively constitute a significant adverse effect on water quality at a regional scale. As such, despite compliance with applicable regulatory requirements, operational water quality impacts would be significant requiring the consideration of mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

SMM-HYD-1 SCAG shall continue to facilitate regional forums for collaboration opportunities, such as through the Sustainable & Resilient Communities Working Group, to share best practices and develop recommendations to create resilient communities in the region. SCAG shall continue to work with stakeholders and the public to encourage regional-scale planning that addresses regional shocks and stressors, such as improved water quality, groundwater, stormwater management, pollution prevention, flooding, wildfire prevention, disaster emergency services, emergency evacuation plans, wildfire resiliency, and earthquake preparedness to the extent practical and feasible through cooperative planning, information sharing, and encouragement of comprehensive control measure development within the SCAG region.

PROJECT-LEVEL MITIGATION MEASURE

- PMM-HYD-1** In accordance with provisions of CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B), a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects from violation of any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, as applicable and feasible. While compliance with the various municipal regional stormwater permits (MS4s) is required by law, not all areas are necessarily covered under one. For those areas that are not covered under a municipal stormwater permit (MS4), such measures may include the following or other comparable measures identified by the lead agency:
- a) Implement best management practices to reduce the peak stormwater runoff from the project site to the maximum extent practicable.
 - b) Complete, and have approved, a Standard Urban Stormwater Management Plan, prior to occupancy of residential or commercial structures.
 - c) Ensure adequate capacity of the surrounding stormwater system to support stormwater runoff from new or rehabilitated structures or buildings.
 - f) Where feasible, restore or expand riparian areas such that there is no net loss of impervious surface as a result of the project.
 - g) Install structural water quality control features, such as drainage channels, detention basins, oil and grease traps, filter systems, and vegetated buffers to prevent pollution of adjacent water resources by polluted runoff where required by applicable urban stormwater runoff discharge permits, on new facilities.
 - h) Provide operational best management practices for street cleaning, litter control, and catch basin cleaning are implemented to prevent water quality degradation in compliance with applicable stormwater runoff discharge permits; and ensure treatment controls are in place as early as possible, such as during the acquisition process for rights-of-way, not just later during the facilities design and construction phase.
 - h) Incorporate as appropriate treatment and control features such as detention basins, infiltration strips, and porous paving, other features to control surface runoff and facilitate groundwater recharge into the design of new transportation projects early on in the process to ensure that adequate acreage and elevation contours are provided during the right-of-way acquisition process.
 - i) Upgrade stormwater drainage facilities to accommodate any increased runoff volumes. These upgrades may include the construction of detention basins or structures that will delay peak flows and reduce flow velocities, including expansion and restoration of wetlands and riparian buffer areas. System designs shall be completed to eliminate increases in peak flow rates from current levels.
 - j) Encourage low-impact development and incorporation of natural spaces that reduce, treat, infiltrate, and manage stormwater runoff flows in all new developments, where practical and feasible.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to violating any water quality standards or WDRs or otherwise substantially degrade surface or groundwater quality, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT HYD-2 **Potential to substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Plan may impede sustainable groundwater management of the basin.**

Significant and Unavoidable Impact – Mitigation Required

The discussion presented below addresses impacts associated with groundwater hydrology and management of groundwater basins in the SCAG region. Impacts related to water supplies and associated infrastructure are discussed in Section 3.19, *Utilities and Service Systems*, of this 2024 PEIR.

GROUNDWATER SUPPLIES

During construction, some projects implemented under the Plan may require excavation that extends down to below groundwater levels. To keep the excavations open, dewatering may be necessary to facilitate the construction of infrastructure, foundations, and subterranean building levels. The source of the water could be from groundwater supplies. However, dewatering would be temporary and limited, and would not result in the pumping of substantial volumes of groundwater. For some projects, water may be needed for dust suppression. The use of groundwater for dust suppression, if any, would be also temporary and limited, and would not result in substantial volumes of pumped groundwater. Therefore, impacts associated with the short-term use of groundwater during construction would be less than significant.

As discussed in Section 3.19, *Utilities and Service Systems*, water supply within the SCAG region is from a combination of local surface water, local groundwater, recycled water, and imported water. Groundwater is pumped from various local wells for a variety of uses. Certain projects may use groundwater depending on the location and needs of a particular project. There are existing regulations that require each specific project to verify the availability of the water supply needed for the specific project. California Senate Bill 610 (SB 610) requires projects subject to CEQA of a specified minimum size to prepare a water supply assessment (WSA) for the project. The WSA must document sources of water supply, quantify water demands, and compare future water supply and demand to show that sufficient water will be available to serve the specific project. Water supply must be assessed for normal, single dry, and multiple dry water years during a 20-year forecast. If supplies are found to be insufficient to serve the project, the WSA must include plans for acquiring sufficient supplies. The WSA must be included in the CEQA document for each project, as applicable. California Senate Bill 221 (SB221) applies to subdivisions of more than 500 dwelling units. Like SB 610, it is intended to ensure an adequate water supply for new development.

SB 221 requires that approval of a tentative map showing the design and improvement of a proposed subdivision shall include a requirement that a sufficient water supply be available.

As discussed in Section 3.10.2, *Regulatory Framework*, SGMA requires the formation of GSAs to manage groundwater in a sustainable manner and allows limited local or state intervention when necessary to protect groundwater resources. All high- and medium-priority basins are required to prepare and implement a GSP to return the groundwater basin to sustainable use. Within the SCAG counties, there are 27 GSAs in the process of returning the groundwater basins to the sustainable use of groundwater. Projects that are subject to CEQA are required to analyze the impact of that specific project relative to the sustainable use of groundwater. In general, assuming compliance with existing permits, operation of projects does not and would not substantially decrease groundwater supplies such that any project may impede sustainable groundwater management of the basin.

However, given that the specific locations and details of all projects under the Plan are not known at this time, there could be unforeseen circumstances that could result in some projects not being covered under previously discussed regulations. For an operations example, projects constructed in rural areas may be located outside of areas covered under an existing GSP or adjudicated basin agreement or other regulatory agency; such projects might not be designed to use groundwater in a sustainable manner, which could adversely affect groundwater supplies. Therefore, to account for these circumstances, at the regional level, operational impacts to groundwater supplies would be significant requiring the consideration of mitigation measures.

GROUNDWATER RECHARGE

The introduction of impermeable surfaces greatly reduces natural infiltration, which in turn reduces replenishment of groundwater supplies. Projects implemented as a result of the Plan could result in the addition of new impervious surfaces. The addition of impervious surfaces could substantially interfere with groundwater recharge.

As discussed in Impact HYD-1, the vast majority of projects implemented under the Plan would be required to comply with the requirements of the Municipal Stormwater Program (i.e., the MS4 or Municipal Regional Permit, or Caltrans Stormwater Permit depending on the project location), as discussed in Section 3.10.2, *Regulatory Framework*. Project applicants would, under normal circumstances, continue to be required to submit project design plans to the appropriate regulatory agency to demonstrate that the operation of their project would comply with the applicable permit requirements. The requirements include addressing changes to the amount of impervious surface on a given project site that may interfere with groundwater recharge. Similarly, projects that increase the amount of impervious surface would be required to implement BMPs to address the change. BMPs may include the installation of infiltration galleries, bioswales, and other measures to infiltrate stormwater into the surface, thus maintaining groundwater recharge. Other BMPs may include recycling the water for landscaping or graywater use, thus reducing the reliance of water supplies, of which groundwater is one source. BMPs included in site designs and plans for such projects are reviewed by the relevant agency's engineering staff to ensure the addition of impervious surfaces and interference with groundwater recharge are addressed. The implementation of BMPs required by the permits generally prevent substantial adverse impacts relative to interfering with groundwater recharge. With compliance with permits, operation of most projects implemented as a result of the Plan would continue to not interfere substantially with groundwater recharge such that any one project or multiple projects may impede sustainable groundwater management of the basin.

The operation of projects implemented as a result of the Plan is anticipated to be addressed as part of construction in establishing a given project in the first place (i.e., in providing for recharge areas, stormwater retention, drainage etc.) in compliance with existing federal, state, city, or county regulations. However, given that the specific locations

and details of all projects that would be developed under this Plan are not known at this time, there could be unforeseen circumstances that could result in some projects not being covered under previously discussed regulations. For an operations example, projects constructed in rural areas may be located outside of areas covered under an existing municipal stormwater permit (i.e., MS4); such projects might not be designed to address the addition of impervious surfaces, which could adversely affect groundwater recharge. Therefore, to account for these circumstances, at the regional level, impacts to groundwater recharge are considered significant requiring the consideration of mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM HYD-1.

PROJECT-LEVEL MITIGATION MEASURES

PMM-HYD-2 In accordance with provisions of CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B), a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects from violation of any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality, as applicable and feasible. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a) Avoid designs that require continual dewatering where feasible. For projects requiring continual dewatering facilities, implement monitoring systems and long-term administrative procedures to ensure proper water management that prevents degrading of surface water and minimizes adverse impacts on groundwater for the life of the project. Construction designs comply with appropriate building codes and standard practices including the CBC.
- b) Maximize, where practical and feasible, permeable surface area to protect water quality and allow for groundwater recharge. Minimize new impervious surfaces, including the use of in-lieu fees and off-site mitigation.
- c) Avoid construction and siting on groundwater recharge areas, where feasible, to prevent conversion of those areas to impervious surface.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to decreasing groundwater supplies or interfering with groundwater recharge such that the project may impede sustainable groundwater management of the basin, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT HYD-3A Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would result in substantial erosion or siltation on- or off-site.

Significant and Unavoidable Impact – Mitigation Required

During construction of projects implemented as a result of the Plan, existing drainage patterns could be substantially altered. Inadequate controls of stormwater runoff and/or runoff could expose ground surfaces, redirect drainage, and consolidate runoff resulting in substantial erosion or siltation onsite or offsite.

As discussed above in Impact HYD-1, during construction, most projects would be required to comply with local LID requirements as well as the Construction General Permit or the Caltrans Stormwater Permit, which would require the preparation and implementation of a site-specific SWPPP and implementation of BMPs. The BMPs would be designed to minimize the potential for onsite and offsite erosion or siltation, as well as temporary changes in drainage patterns during construction. Construction BMPs would capture and infiltrate sheet flow during storm events into the ground such that offsite runoff from the construction site would not increase, ensuring that drainage patterns would not be significantly altered. BMPs would be implemented to control construction site runoff, ensure proper stormwater control and treatment, and prevent the discharge of sediment and other pollutants to offsite areas. Therefore, construction would not substantially alter the existing drainage pattern of the area in a manner that would result in substantial erosion or siltation under typical conditions. It is acknowledged, however, that in some instances adverse impacts to water quality from construction activities, including impact related to erosion and siltation, could occur in some discrete locations, and thus such circumstances are considered reasonably foreseeable and could occur frequently enough that they would collectively constitute a significant adverse effect on water quality at a regional scale. Accordingly, despite compliance with applicable regulatory requirements, construction-related impacts regarding erosion and siltation associated with alterations in drainage patterns or waterways, or increases in impervious surfaces, would be significant requiring the consideration of mitigation measures.

Implementation of projects as a result of the Plan could substantially alter existing drainage patterns and add impervious surfaces. The changes could expose ground surfaces, redirect drainage, and concentrate flow due to the addition of impervious surfaces. Projects may include lane widening projects and new transportation facilities that could cross existing creeks or be expanded into wetland areas. Stormwater runoff is influenced by rainfall intensity, ground surface permeability, watershed size and shape, and physical barriers. The introduction of impermeable surfaces greatly reduces natural infiltration, allowing for a greater volume of runoff. In addition, paved surfaces and drainage conduits can accelerate the velocity of runoff, concentrating peak flows in downstream areas faster than under natural conditions. Significant increases to runoff and peak flow can overwhelm drainage systems and alter flood elevations in downstream locations. Failure to properly implement appropriate BMPs or other design features could result in substantial erosion or siltation during rain events.

As discussed above in Impact HYD-1, stormwater runoff from the types of urban uses that would result from Connect SoCal 2024 would, under most circumstances, be regulated under the Municipal Stormwater Program (i.e., the MS4 or Municipal Regional Permit or Caltrans Stormwater Permit depending on the project location), and applicable LID requirements, as discussed in Section 3.10.2, *Regulatory Framework*. Project applicants would be required to submit project design plans (e.g., drainage plans, hydrology plans, LID plans) to the appropriate regulatory agency to demonstrate that the operation of their project would comply with the applicable permit

requirements. The requirements include quantifying the volume and rate of stormwater runoff and the percent change in the amount of impervious surfaces. The project design would be required to capture and treat stormwater prior to exiting the project site and designing the stormwater system so as to prevent erosion. BMPs included in site designs and plans for proposed projects would be reviewed by the relevant agency's engineering staff to ensure adequate treatment and design capacity prior to permit issuance. The review and permitting process, when implemented properly, would ensure that the permit's WDRs would not be violated by proposed projects. The BMPs would include stormwater collection and treatment systems with measures such as infiltration galleries, bioswales, bioretention basins, and storage, treatment, and reuse of stormwater for landscaping or graywater use. With compliance with existing permit requirements, operation of projects implemented under the Plan would not result in increases in erosion and siltation associated with alterations in drainage patterns or waterways or increases in impervious surfaces. As is the case with construction-related impacts, however, there could be limited instances in which certain projects are not subject to stormwater permit requirements, thereby increasing the potential for adverse erosion and siltation to occur during storm events. Such circumstances are considered reasonably foreseeable given the size of the SCAG region and variability in site conditions and regulatory enforcement, and thus could occur frequently enough that they would collectively constitute a significant adverse effect on water quality at a regional scale. Accordingly, despite compliance with applicable regulatory requirements for most projects, operational impacts including erosion and siltation associated with alterations in drainage patterns or waterways, or increases in impervious surfaces, could be significant requiring the consideration of mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-HYD-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-HYD-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to altering the existing drainage pattern of a site or area in a manner which would result in substantial erosion or siltation on- or off-site, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT HYD-3B Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

Significant and Unavoidable Impact – Mitigation Required

As discussed in Impact HYD-3a, implementation projects as a result of the Plan would have the potential to change existing drainage patterns. Transportation projects such as lane widening projects, new highways, as well as bridges/tunnels, and transportation facilities projects that could cross existing creeks, water crossings, rivers or be expanded into wetland areas may impact water bodies by placing fill material within a stream channel. Such changes could result in increased flooding. In addition, land use projects resulting from the Plan's policies and strategies could increase impervious surfaces including the consumption of greenfield lands.

Stormwater runoff is influenced by rainfall intensity, ground surface permeability, watershed size and shape, and physical barriers. The introduction of impermeable surfaces may allow for a greater or concentrated volume of runoff. As stated previously, paved surfaces and drainage conduits can accelerate the velocity of runoff, concentrating peak flows in downstream areas faster than under natural conditions. Significant increases to runoff and peak flow can overwhelm drainage systems and alter flood elevations in downstream locations. The increase in velocity has the potential to create or contribute runoff flows that would exceed the capacity of existing or planned stormwater drainage systems and flood offsite areas. In addition, placing new structures within an existing floodplain can impede or redirect flood waters, altering the flood risks both upstream and downstream.

As discussed in Impacts HYD-1, HYD-2, and HYD-3a, the construction activities for and operations of most projects under the Plan are anticipated to be covered under existing federal, state, city, or county regulations, which would generally preclude adverse impacts involving flooding. However, it is acknowledged that there could be incidental cases where localized flooding could occur, and therefore it is reasonably foreseeable, despite compliance with existing MS4, LID, and Caltrans stormwater requirements for most projects, that these incidental flooding events could occur on a widespread basis given the size of the SCAG region and variability in site conditions and regulatory enforcement. Therefore, such incidental flooding could collectively constitute a significant adverse impact at a regional scale, which requires the consideration of mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-HYD-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-HYD-1 and PMM-HYD-2.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations

would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to altering the existing drainage pattern of the site or area in a manner that would substantially increase the rate or amount of surface runoff which would result in flooding on- or off-site, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

Impact HYD-3C Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Significant and Unavoidable Impact – Mitigation Required

As discussed in Impact HYD-3a, implementation of projects as a result of the Plan has the potential to alter existing drainage patterns. Implementation of the Plan may increase impervious surfaces, which in turn could increase urban runoff if not regulated, resulting in the transport of greater volumes of polluted water into storm drain systems. Stormwater runoff is influenced by rainfall intensity, ground surface permeability, watershed size and shape, and physical barriers. The introduction of impermeable surfaces greatly reduces natural infiltration, allowing for a greater volume of runoff.

As stated previously, paved surfaces and drainage conduits can accelerate the velocity of runoff, concentrating peak flows in downstream areas faster than under natural conditions. Significant increases to runoff and peak flow can overwhelm drainage systems and alter flood elevations in downstream locations. Increased runoff velocity can also promote scouring of existing drainage facilities, reducing system reliability and safety. In addition, this increase in velocity has the potential to create or contribute runoff flows that would exceed the capacity of existing or planned stormwater drainage systems and provide additional sources of polluted runoff.

As discussed in Impacts HYD-1, HYD-2, and HYD-3a, the construction activities for and operations of most projects implemented under the Plan are anticipated to be covered under existing federal, state, city, or county regulations, which would generally preclude adverse impacts involving exceeding the capacity of existing or planned stormwater drainage systems or providing substantial additional sources of polluted runoff. However, it is also acknowledged that there could be incidental cases where increased flow rates or pollutant loading could occur, and given the size of the SCAG region and variability in site conditions and regulatory enforcement, it is reasonably foreseeable, despite compliance with existing MS4, LID, and Caltrans stormwater requirements for most projects, that such exceedances of stormwater system capacity or increases in pollutant sources could occur on a widespread basis. Therefore, such individual occurrences would collectively constitute a significant adverse impact at a regional scale, which requires the consideration of mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-HYD-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-HYD-1 and PMM-HYD-2.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to altering the existing drainage pattern of the site or area in a manner which would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT HYD-3D Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would impede or redirect flood flows.

Significant and Unavoidable Impact – Mitigation Required

As discussed in Impact HYD-3a, projects implemented as a result of the Plan would continue to have the potential to alter existing drainage patterns and increase impervious surfaces, which in turn could impede or redirect flood flows that could adversely affect individual project sites and surrounding properties. Stormwater runoff is influenced by rainfall intensity, ground surface permeability, watershed size and shape, and physical barriers. The introduction of impermeable surfaces may allow for a greater or concentrated volume of runoff.

As stated previously, paved surfaces and drainage conduits can accelerate the velocity of runoff, concentrating peak flows in downstream areas faster than under natural conditions. Significant increases to runoff and peak flow can overwhelm drainage systems and alter flood elevations in downstream locations. The increase in velocity has the potential to create or contribute runoff flows that would exceed the capacity of existing or planned stormwater drainage systems and flood offsite areas. In addition, placing new structures within an existing floodplain can impede or redirect flood waters, altering the flood risks both upstream and downstream.

Further, as discussed in Impact HYD-1, HYD-2, and HYD-3a, the construction activities for and operations of most projects implemented as a result of the Plan are anticipated to be covered under existing federal, state, city, or county regulations, which would generally preclude adverse impacts involving impeding or redirecting flood flows.

However, there could be incidental cases where impedance or redirection of stormwater flows could occur given the size of the SCAG region and variability in site conditions and regulatory enforcement, and thus it is reasonably foreseeable that such conditions could occur on a widespread basis despite compliance with existing MS4, LID, and Caltrans stormwater requirements for most projects. Therefore, individual occurrences of impeded or redirected stormwater flows would collectively constitute a significant adverse impact at a regional scale requiring the consideration of mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-HYD-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-HYD-1 and PMM-HYD-2.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to altering the existing drainage pattern of the site or area in a manner which would impede or redirect flood flows, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

Impact HYD-4 **In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.**

Significant and Unavoidable Impact – Mitigation Required

Implementation of projects as a result of the Plan that are proposed to be built within coastal areas, low-lying areas or in proximity to waterways or dam inundation zones may be subject to flood hazards from rain-induced flooding (e.g., located in 100-year flood zones), sea-level rise, tsunamis, or seiches. Flooding risks are associated with projects that are located downstream of dams and retention basins, or otherwise afforded protection by levee systems. These areas may be subject to flooding as a result seismic ground-shaking or other natural or anthropogenic actions that could compromise the stability of such structures leading to failure. Additional compact urban development, as well as possible expansion of existing urban areas in areas that are potentially subject to flooding as a result of failure of a levee or dam, could create a potential to release pollutants during a flood event. With more than 150 miles of coastline, projects implemented as a result of the Plan that are located near the coast could be susceptible to tsunamis or sea level rise. The entire SCAG region is susceptible to impacts from seismic activity including the occurrence of seiches in enclosed water bodies such as Big Bear Lake, Lake Arrowhead, Lake Casitas, Castaic Lake, Pyramid Lake, Lake Elsinore, Diamond Valley Lake, and the Salton Sea.

In general, compliance with existing regulatory requirements described in Section 3.10.2, *Regulatory Framework*, and discussed further below, would ensure that the land use changes and transportation network improvements would not expose people or structures to a significant risk from the release of pollutants due to inundation. However, in some cases it is possible that projects would not be subject to applicable regulations or appropriate measures are not implemented such that significant inundation impacts could occur, thereby requiring the consideration of mitigation measures.

FLOOD HAZARD ZONES

The Plan encourages higher-density housing and commercial development in PDAs. PDAs are generally located in urban areas that are subject to Flood Management Plans (FMPs) and major flood control infrastructure that have been constructed to constrain the 100-year flood into flood control systems in these areas.

The flood control districts in the SCAG region participate in the NFIP, which is based on a mutual agreement between the federal government and communities. Participating communities agree to regulate floodplain development according to specified criteria and standards. Specifically, communities must adopt and enforce minimum floodplain management regulations so that development, including buildings, is undertaken in ways that reduce exposure to flooding.

Flood-prone areas in Imperial County are managed pursuant to an FMP, which includes a future-oriented approach to planning in flood risk areas. It is a pre-disaster planning approach that is required by FEMA for the County to continue to participate in the NFIP. When a community chooses to join the NFIP, it must adopt and enforce minimum floodplain management standards for participation. The floodplain management requirements within the Special Flood Hazard Area are designed to prevent new developments from increasing the flood threat and to protect new and existing buildings from anticipated flood events. When a community chooses to join the NFIP, it must require permits for all development within the Special Flood Hazard Area and ensure that construction materials and methods used will minimize future flood damage.

The Los Angeles Flood Control District includes the majority of drainage infrastructure within incorporated and unincorporated areas in every watershed in the County, including 500 miles of open channel, 2,800 miles of underground storm drain, and an estimated 120,000 catch basins.

The County of Orange maintains 350 miles of concrete, rock lined and earthen flood control facilities. Flood control facilities are designed to handle water flow from storm drains and other runoff and "channel" the water into the bay or ocean.

The Riverside County Flood Control District owns and operates over 600 miles of channels storm drains and levees along with 74 dams and detention basin that reduce flood risk throughout the District.

Similarly, the San Bernardino County Flood Control District has developed a very extensive system of facilities, including dams, conservation basins, channels, and storm drains to intercept and convey flood flows through and away from the major developed areas of the County.

The Ventura County Flood Control District provides for the control and conservation of flood and stormwaters and for the protection of watercourses, watersheds, public highways, life, and property in the district from damage or destruction from these waters.

The Plan encourages development in PDAs and other urban areas that are generally afforded flood protection by flood control facilities and are subject to specific land use planning regulations pursuant to the NFIP. Therefore, the Plan would not be expected to result in development in flood hazard zones. However, in some cases it is possible that projects would not be subject to applicable regulations or would be located in areas where adequate flood protection infrastructure has not been implemented such that significant flooding impacts could occur, thereby requiring the consideration of mitigation measures.

SEA LEVEL RISE AND TSUNAMIS

Rising sea levels will increase the potential for coastal flooding and flood hazards in the future (see *Flood Hazards*, in Environmental Setting above), and the issue of sea-level rise is a critical component of land use planning and hazard analysis in coastal areas. Until the year 2050, most of the climate models predict a similar degree of sea-level rise; however, after 2050, projections of sea-level rise become less certain because of divergent modeling results and differences in various estimates of GHGs (California Ocean Protection Council 2018).

The CCC's Sea-Level Rise Policy Guidance outlines the types of information, analysis, and design considerations the CCC's staff requires to determine whether shoreline projects conform to the Coastal Act policies in anticipation of increasing flood and erosion hazards caused by sea-level rise. To be consistent with the Coastal Act, projects must be designed to minimize conflicts with applicable requirements, including that new development (1) be designed to eliminate or mitigate adverse effects on local shoreline sand supply; and (2) ensure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of a site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along the coast (Pub. Res. Code Sections 30235 and 30253).

Sea-level rise and the risk of tsunamis are existing environmental conditions, and unless future projects exacerbate these conditions, they are not considered potentially significant impacts under CEQA. As discussed in Section 3.8, *Greenhouse Gas Emissions*, the Plan could result in a significant impact with respect to GHG emissions, and GHGs are considered a primary cause of global climate change and sea-level rise. However, the relationship between development in any given region or country and measurable sea-level rise is not possible to determine and is therefore considered too speculative to be analyzed any further in this environmental document.

Projects resulting from Connect SoCal 2024 are generally expected to be built in areas already subject to the flooding hazards discussed above, and existing planning and design standards and regulations would typically serve to address and minimize the associated potential impacts. In addition, project-specific technical studies would be required to reduce potential risks associated with individual projects. Nonetheless, given the extent of coastal land in the region, the diversity of site conditions, uncertainties regarding the future effects of climate change, and variability in regulatory enforcement, there exists a reasonably foreseeable potential for significant adverse environmental effects associated with sea level rise and tsunamis to occur under the Plan. As such, impacts are considered significant and thus mitigation measures must be considered.

SEICHES

Risks from seiches to future projects implemented under the Plan would only occur if a given project were located adjacent or in close proximity to an enclosed water body such as Big Bear Lake, Lake Arrowhead, Lake Casitas, Castaic Lake, Pyramid Lake, Lake Elsinore, Diamond Valley Lake, and the Salton Sea. However, similar to the flooding risks discussed above, projects would be largely located in areas that are within FMPs. In these areas, flood-prevention infrastructure is largely in place to manage flood flows in most waterways. Existing planning and

design standards and regulations would generally serve to address and minimize the associated potential impacts by restricting development adjacent to water bodies. In addition, project-specific technical studies would be required to address potential risks associated with individual projects and would be subject to the CEQA process. Lead agencies would review the location and design of these projects and would only approve such projects if designed to resist or avoid damage from seiches, which would reduce potential risks associated with the Plan.

Nonetheless, it is acknowledged that projects constructed in rural areas outside of a municipal jurisdiction may not consider the risk of being located within a seiche zone. Given that the specific locations and details of all projects under the Plan are not known at this time, there could be unforeseen circumstances that could result in some projects not being covered under previously discussed regulations. While not typical, there exists a reasonably foreseeable potential for significant adverse environmental effects associated with seiches to occur under the Plan. As such, impacts are considered significant requiring the consideration of mitigation measures.

SUMMARY

Based on the above analysis and compliance with the regulations outlined in Section 3.10.2, *Regulatory Framework*, projects implemented under the Plan would either not be located in flood hazard, tsunami, or seiche zones, or would be anticipated in most instances to be designed to reduce the risk of releasing of pollutants due to project inundation if located in such zones.

However, given that the specific locations and details of all projects under the Plan are not known at this time, there could be unforeseen circumstances that could result in some projects not being covered under previously discussed regulations. For example, projects constructed in rural areas outside of a municipal jurisdiction may not consider the risk of being located within a flood hazard, tsunami, or seiche zone. Such projects might not be designed to avoid inundation such that inundation could result in the release of pollutants. Therefore, to account for these circumstances, SCAG is proposing the mitigation measures described below.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM HYD-1.

PROJECT-LEVEL MITIGATION MEASURE

PMM-HYD-4 In accordance with provisions of CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B), a Lead Agency for a project can and should consider mitigation measures capable of avoiding or reducing the potential impacts of locating structures that would impede or redirect flood flows, as applicable and feasible. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a) Ensure that all roadbeds for new highway and rail facilities be elevated at least one foot above the 100-year base flood elevation. In areas affected by coastal flooding, new projects should be designed for resilience with 3.5 feet of sea-level rise, as per California Ocean Protection Council's strategic guidance. Since alluvial fan flooding is not often identified on FEMA flood maps, the risk of alluvial fan flooding should be evaluated and projects should be sited to avoid alluvial fan flooding. Delineation of floodplains and alluvial fan boundaries should attempt to account for future hydrologic changes caused by global climate change.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to risking the release of pollutants due to project inundation in flood hazard, tsunami, or seiche zones, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT HYD-5 **Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.**

Significant and Unavoidable Impact – Mitigation Required

WATER QUALITY CONTROL PLANS (BASIN PLANS)

As discussed in Section 3.10.1, *Environmental Setting*, there are six RWQCBs (either wholly or in part) that have jurisdiction within the SCAG region. The RWQCBs are responsible for the protection of the beneficial uses of waters within each county. In general, the RWQCB uses its planning, permitting, and enforcement authority to meet this responsibility and adopts a Water Quality Control Plan (basin plan) to implement plans, policies, and provisions for water quality management. The basin plan for each of the six SCAG counties is discussed in Section 3.10.2, *Regulatory Framework*, under the *Regional* subheading. In accordance with state policy for water quality control, the RWQCB employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The basin plan identifies existing and potential beneficial uses supported by the key surface water drainages throughout its jurisdiction. The basin plan also includes water quality objectives that are protective of the identified beneficial uses; the beneficial uses and water quality objectives collectively make up the water quality standards for a given region and basin plan.

As discussed above under Impacts HYD-1, HYD-2, HYD-3, and HYD-4, there are numerous laws, regulations, and policies, including Basin Plans, which regulate the use of surface water and groundwater throughout the SCAG region. These regulations include water quality goals to maintain the high quality of waters within the state of California. Future projects implemented under the Plan would, in general, be required to comply with these regulations. Under these circumstances, during construction, future projects of any size would be expected to comply with local LID requirements, as applicable, and required to comply with the state Construction General Permit and its required preparation and implementation of a SWPPP if they disturb an area greater than one acre in size. If properly implemented, the BMPs described in the SWPPP would ensure that water quality is not adversely affected by sediment or other pollutants during construction. During operations, the design of future projects would be required to comply with NPDES permits requirements, the MS4s or the Caltrans Stormwater Permit, depending on the location and nature of the project. These permits require that projects be designed to capture and treat stormwater prior to exiting the project site. Compliance with these permits would generally be expected to adequately protect water quality and would be consistent with the basin plans. However, as noted previously,

given the size of the SCAG region and variability in site conditions and regulatory enforcement, it is reasonably foreseeable that adverse impacts to water quality could occur on a widespread basis despite general compliance with existing MS4, LID, and Caltrans stormwater requirements for most projects, thereby resulting in conflicts with basin plan objectives. As such, impacts in this regard would be considered significant warranting the consideration of mitigation measures.

SUSTAINABLE GROUNDWATER MANAGEMENT PLANS

As discussed in Section 3.10.2, *Regulatory Framework*, under the *Regional* subheading, there are 27 medium and high priority groundwater basins that are required to implement GSPs to return the volume of groundwater use within the given groundwater basin to sustainable levels. In addition, there are 22 adjudicated groundwater basins that similarly are required by court orders to return the volume of groundwater use within the given groundwater basin to sustainable levels. Managers of each basin are required to quantify the amount of groundwater that can be sustainably pumped from each basin and require groundwater users to reduce groundwater withdrawals to achieve sustainable groundwater use. Compliance with SGMA and court-ordered adjudications would require sustainable groundwater use and would be consistent with Sustainable Groundwater Management Plans and the similar plans required for adjudicated basins. However, there could be instances where localized groundwater use not subject to GSPs or court adjudication occurs throughout the region that could collectively constitute a significant adverse impact to groundwater resources. In addition, implementation of Connect SoCal 2024 would increase impervious surfaces due to additional lane miles and conversion of greenfields to developed land for land use projects. An increase in impervious surfaces would increase water runoff and potentially affect groundwater recharge rates and water quality in the basins. As such, impacts are considered significant requiring the consideration of mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM HYD-1.

PROJECT-LEVEL MITIGATION MEASURE

See PMM-HYD-2.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to conflicting with or obstructing implementation of a water quality control plan or sustainable groundwater management plan, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

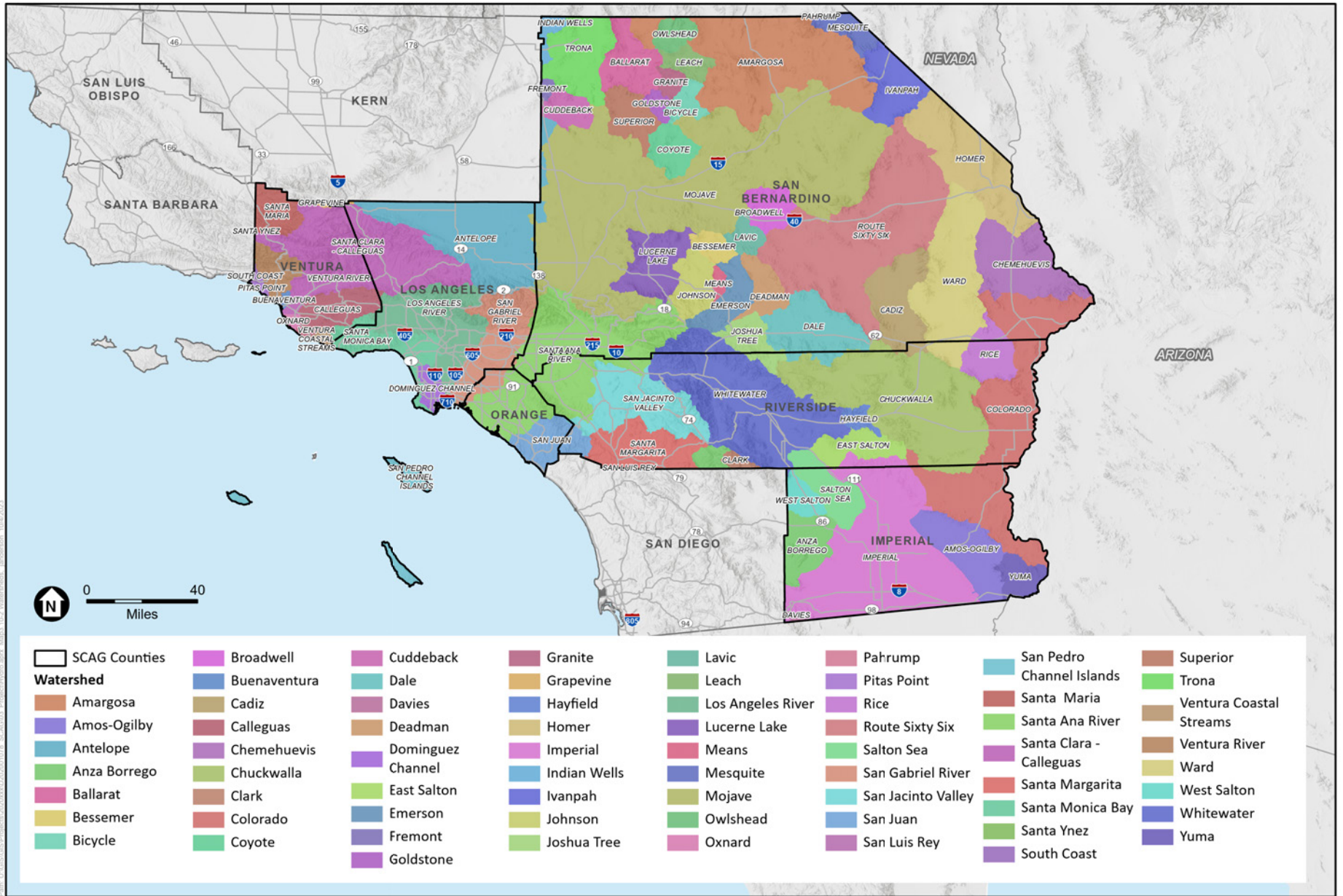
Connect SoCal 2024 is a regional-scale Plan comprising policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to hydrology, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.



SOURCE: Department of Water Resources, 2020

Connect SoCal 2024 PEIR

Map 3.10-1
Hydrologic Regions

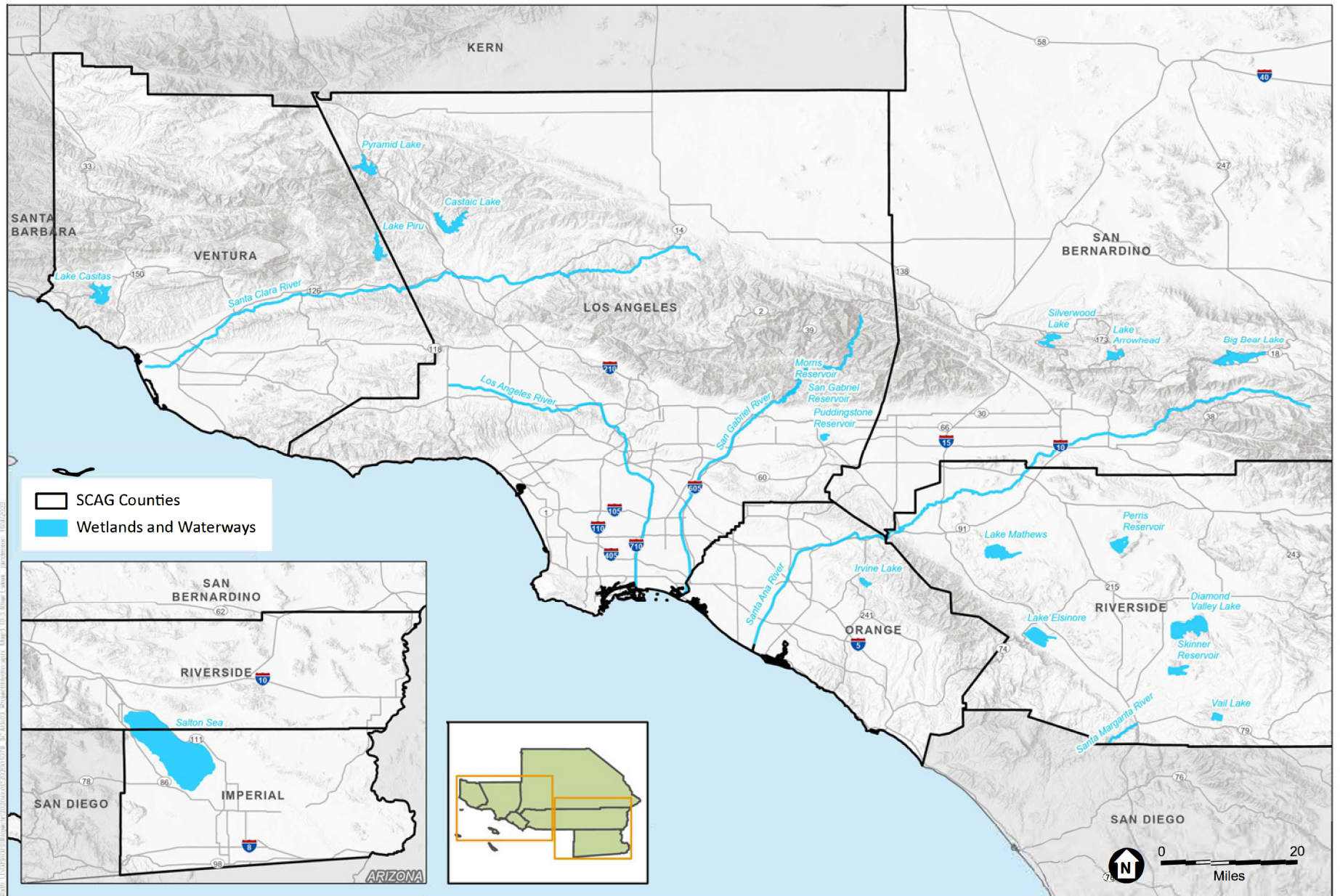


SOURCE: State Water Resources Control Board, 2016

Connect SoCal 2024 PEIR

Map 3.10-2
Watersheds in the SCAG Region



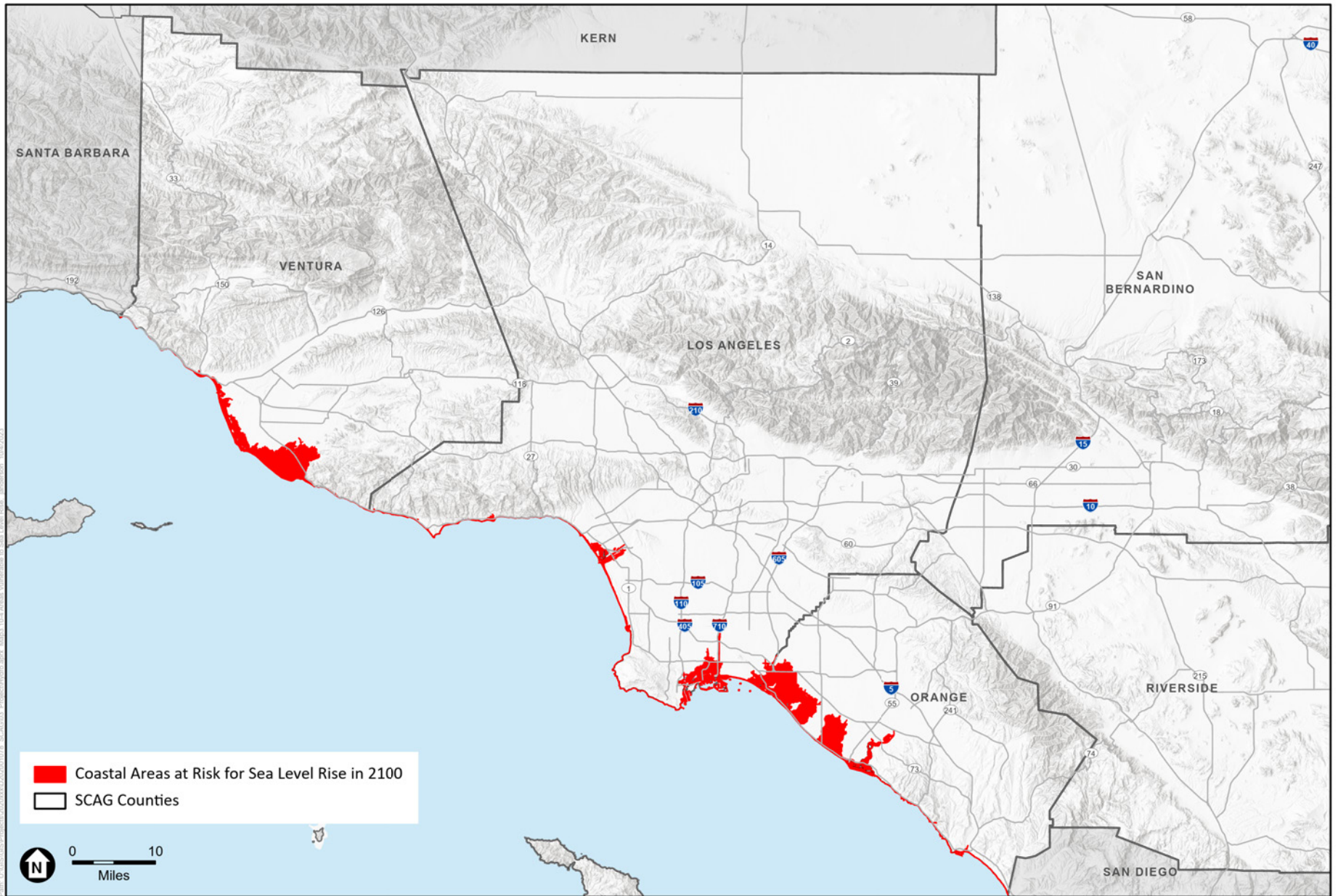


SOURCE: National Hydrography Dataset, 2022

Connect SoCal 2024 PEIR

Map 3.10-3
 Federally Protected Wetlands and Waterways within the SCAG Region

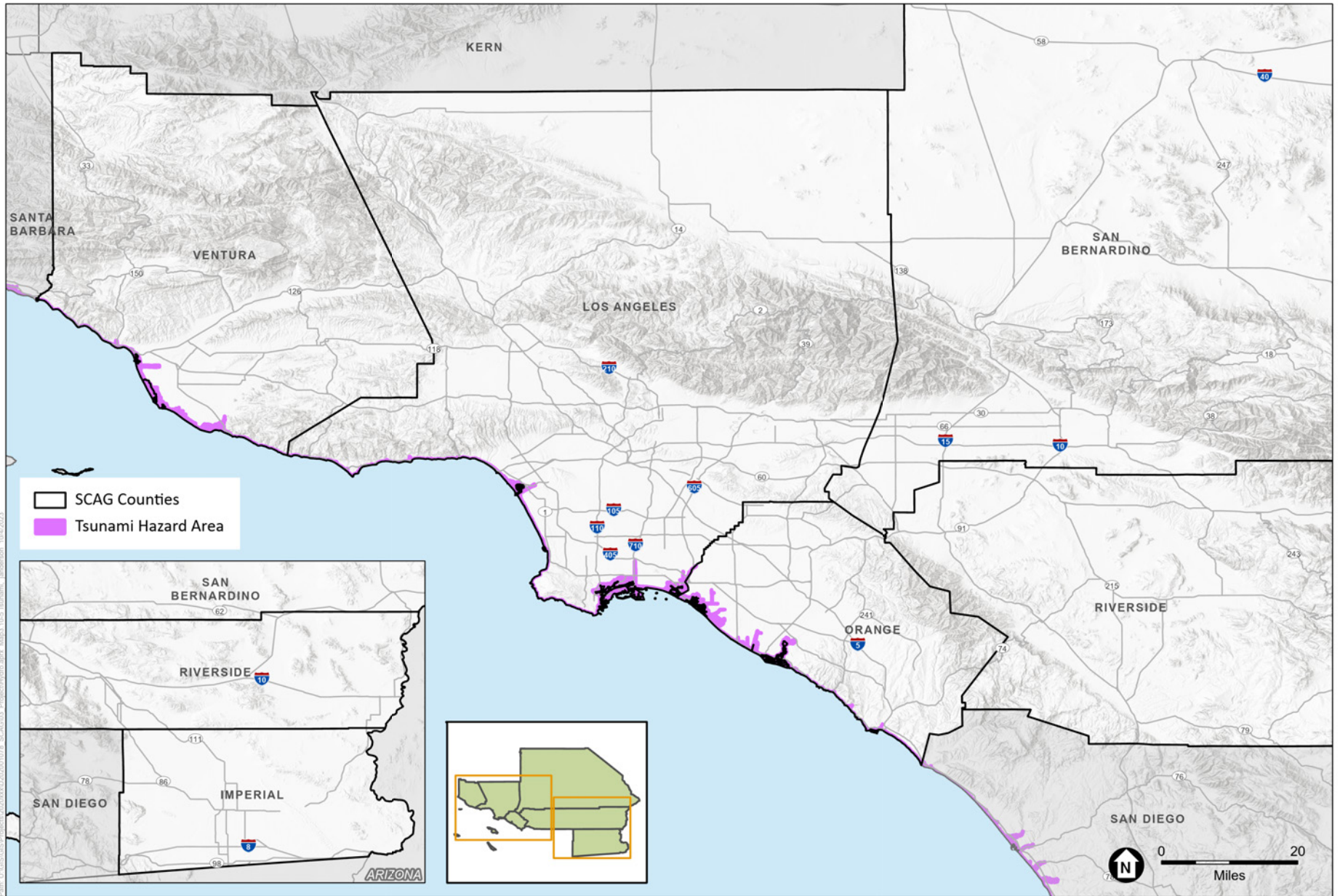




SOURCE: Pacific Institute, 2009

Connect SoCal 2024 PEIR

Map 3.10-4
Areas Vulnerable to Sea Level Rise

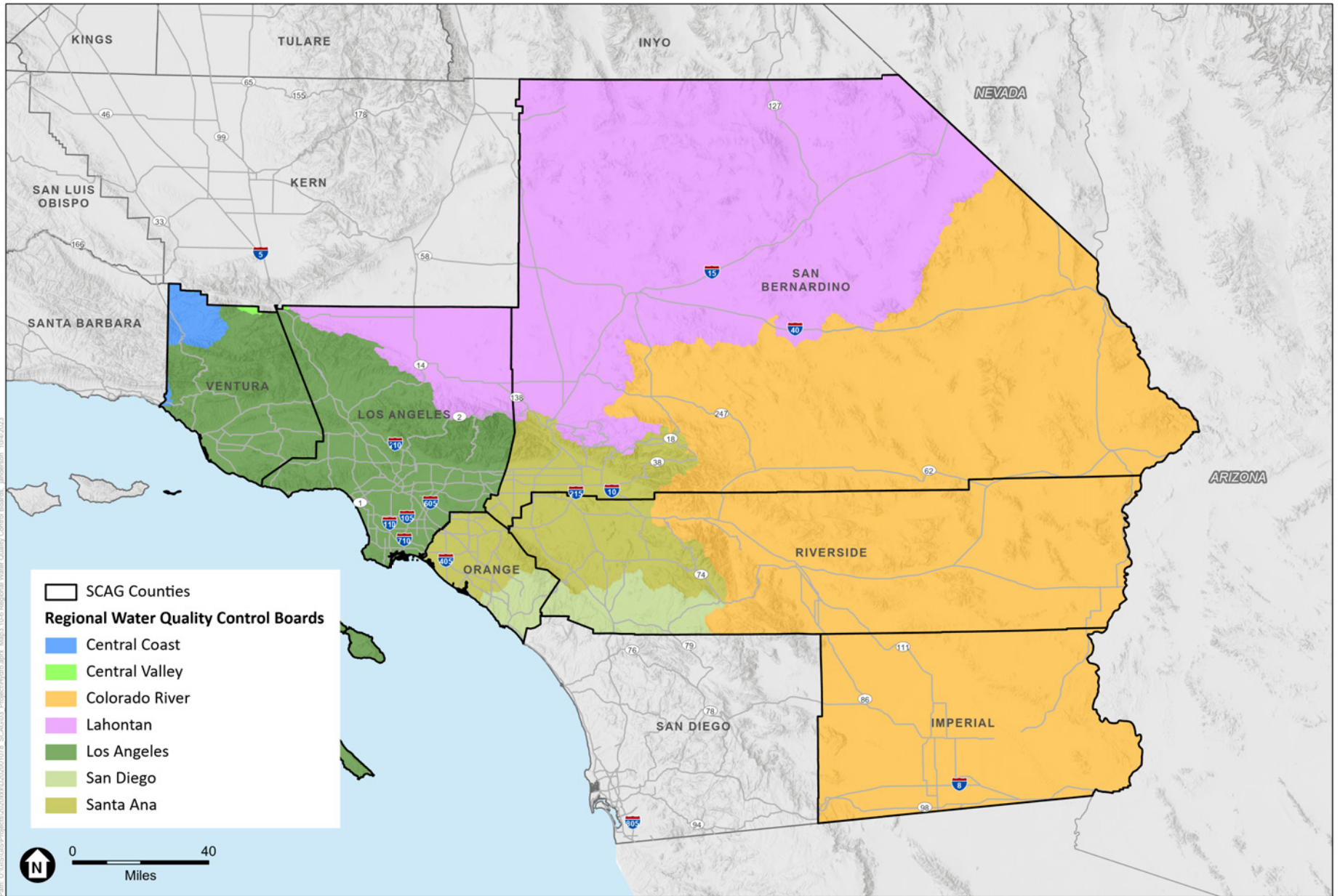


SOURCE: CGS, 2022

Connect SoCal 2024 PEIR

Map 3.10-5
Areas Susceptible to Tsunamis





SOURCE: State Water Resources Control Board, 2019

Connect SoCal 2024 PEIR

Map 3.10-6
Regional Water Quality Control Boards



3.10.4 SOURCES

- Arrowhead Lake Association. 2023. A History of Lake Arrowhead.
- Big Bear Municipal Water District. 2018. Lake History.
- Brabec, E., S. Schulte, and P.L. Richards. 2002. Imperious Surfaces and Water Quality: A Review of Current Literature and Its Implications on Watershed Planning. *Journal of Planning Literature*. May.
- California Department of Water Resources (DWR). 2019. California Water Plan, Update 2018. Water Resources for Sustainability. June.
- DWR. 2020. Hydrologic Regions.
- DWR. 2023a. SGMA Basin Prioritization Dashboard. Medium and High Priority Basins.
- DWR. 2023b. SGMA Basin Prioritization Dashboard. Adjudicated Basins
- California Geological Survey (CGS). 2022. CGS information warehouse. Tsunami hazard Area Map.
- California Natural Resources Agency and California Ocean Protection Council (CNRA/OPC). 2018. State of California Sea-Level Rise Guidance 2018 Update.
- CNRA/OPC. 2020. Strategic Plan to Protect California’s Coast and Ocean 2020–2025.
- California Public Utilities Commission (CPUC). 2010. Embedded Energy in Water Studies Study 1: Statewide and Regional Water-Energy Relationship. August 31.
- Diamond Valley Marina. 2023. About Diamond Valley Lake & Marina.
- Federal Emergency Management Agency (FEMA). 2023. Flood Map Service Center.
- Grifman, P.M., A.G. Newton Mann, N. Sadrpour. 2016. Regional AdaptLA Executive Summary and Technical Report: Results from the Local Coastal Program Sea Level Rise Grant Program. University of Southern California Sea Grant Program. USCSG-TR-01-2017.
- Hakkam, K., H. Jeong, J. Jeon, and S. Bae. 2016. The Impact of Impervious Surface on Water Quality and Its Threshold in Korea. *Water*. March 23.
- Los Angeles Regional Water Quality Control Board (LARWQCB). 2014. Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties Chapter 1: Introduction. September 11.
- National Oceanic and Atmospheric Administration (NOAA). 2023a. What is a Seiche?
- NOAA. 2023b. What is a Tsunami?
- Salton Sea Authority. 2023. Timeline of Salton Sea History. Accessed October 22, 2023.
- San Diego Regional Water Quality Control Board (SD RWQCB). 2017. Do I Need a Permit? August 22.
- State Water Resources Control Board (SWRCB). 2016. Calwater Watershed Boundaries. <https://gispublic.waterboards.ca.gov/portal/home/item.html?id=be2edf6d62f54e7a82594ad7f5464209>, accessed September 15, 2023.
- SWRCB. 2022. State and Regional Water Boards. February 22.
- SWRCB. 2022. California 2020-2022 Integrated Report (303(d) List/305(b) Report). Appendix A: Proposed Final 2020–2022 303(d) List
- U.S. Bureau of Reclamation. 2023. Casitas Dam. Accessed October 22, 2023.

- U.S. Environmental Protection Agency (USEPA). 1995. Controlling Nonpoint Source Runoff Pollution from Roads, Highways, and Bridges. Office of Water. EPA-841-F-95-008a.
- USEPA. 2020. NPDES Permit Basics. December 23.
- USEPA. 2022a. Section 10 of the Rivers and Harbors Appropriation Act of 1899. April 20.
- USEPA. 2022b. Overview of Clean Water Act Section 404. July 28.
- USEPA. 2022c. Overview of Identifying and Restoring Impaired Waters.
- USEPA. 2023d. Final Rule: The Navigable Waters Protection Rule. <https://www.epa.gov/wotus/final-rule-navigable-waters-protection-rule#:~:text=The%20final%20%22Revised%20Definition%20of,%20the%20rule%20and%20litigation>. Accessed August 9, 2023.
- U.S. Geological Survey (USGS). 2023. National Hydrology Dataset. <http://nhd.usgs.gov/data.html>. Accessed January 2023.

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3.11 LAND USE AND PLANNING

This section of the 2024 PEIR describes the existing land use characteristics within the SCAG region, sets forth the regulatory framework that affect land use and planning and analyzes the potential land use impacts that could occur from development of Connect SoCal 2024. In addition, this PEIR provides regional-scale mitigation measures, as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible.

3.11.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for land use and planning follow:

- *Agricultural lands.* Land designated for farming; specifically, the production of crops and rearing of animals to provide food and other products.
- *Carbon sequestration.* The ability for natural elements such as forests, soils, and oceans to store carbon instead of releasing it into the atmosphere, preventing greenhouse gas (GHG) emissions.
- *Established community:* Refers to a place where there are existing populations of people that have been living in that place for some period of time. The term is used in Appendix G of the CEQA Guidelines under the land use thresholds of significance.
- *Farmland:* Section 21060.1(a) of CEQA (Public Resources Code [PRC] Section 21000–21177) delineates the consideration of agricultural land to include “prime farmland, farmland of statewide importance, or unique farmland, as defined by the United States Department of Agriculture land inventory and monitoring criteria, as modified for California,” and is herein collectively referred to as “Farmland.”
- *General plan:* California State Law requires every city and county to adopt a comprehensive General Plan to guide its future development. The General Plan essentially serves as a “constitution for development”—the document that serves as the foundation for all land use decisions. Every jurisdiction’s General Plan includes seven required “Elements” that are mandated by State law; local governments may adopt additional optional Elements to address local priorities and planning goals.
- *Grazing land:* Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen’s Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.
- *Greenfield:* Also known as “raw land,” land that is privately owned, lacks urban services, has not been previously developed, and is located at the fringe of existing urban areas.
- *Land use designation:* A land use classification with associated land use or management policies. Land use designations are applied to specific areas through the county land use planning processes and culminate in the adoption of a land use element to the General Plan. Some land use designations have been established through legislation (e.g., National Forest), while other designations, such as Significant Ecological Areas, have been established through policy or planning processes.

- *Land use element:* The land use element is one of seven mandatory elements of the General Plan required pursuant to General Land Use Law in California.
- *Natural lands.* Biologically diverse landscapes such as forested and mountainous areas, shrub lands, deserts and other ecosystems which contain habitat that supports wildlife and vegetation.
- *Open space:* Generally understood as any area of land or water which, for whatever reason, is not developed for urbanized uses and which therefore enhances residents' quality of life. Each county and city in California must adopt an open space element as part of its general plan. The element is a statement of local planning policies focusing on the use of unimproved land or water for: 1) the preservation or managed production of natural resources, 2) outdoor recreation, and 3) the promotion of public health and safety. Therefore, open space will be defined by each jurisdiction based on their own unique resources and environment.
- *Ordinance:* A law set forth by a governmental authority; a municipal regulation.
- *Rangelands:* Rangelands include any expanse of natural land that is not fertilized, irrigated, or cultivated and is predominately used for grazing by livestock and wildlife.
- *Recreation:* Recreation areas may be composed of one large site or several sites located in proximity that together provide a recreation opportunity at the local and/or regional level. These parks may include areas of significant natural resources, as well as more developed activity sites.
- *Regional housing needs assessment (RHNA):* The RHNA quantifies the existing and future housing need within each jurisdiction of the SCAG region based on household growth projections, access to transit, and access to jobs, with a consideration for disadvantaged communities. Communities then address this need through identifying adequate sites to accommodate their RHNA allocation in the housing elements of their General Plans.
- *Specific plan:* A specific plan is a tool for the systematic implementation of the general plan. It effectively establishes a link between implementing policies of the general plan and the individual development proposals in a defined area. A specific plan may be as general as setting forth broad policy concepts, or as detailed as providing direction to every facet of development from the type, location and intensity of uses to the design and capacity of infrastructure; from the resources used to finance public improvements to the design guidelines of a subdivision.
- *Subregion:* A total of 15 subregions represent portions of Southern California with shared interests, issues and geography. Subregions play an important role as a conduit between SCAG and local jurisdictions of the region by participating and providing input on SCAG's planning activities. This involvement helps the Regional Council and its committees make better-informed decisions.
- *Urban areas:* Urban Areas in the SCAG region represent densely developed territory, and encompass residential, commercial and other nonresidential urban land uses where population is concentrated over 2,500 people in a given locale.
- *Urban decay:* Physical deterioration of properties or structures that is so prevalent, substantial, and lasting a significant period of time that it impairs the proper utilization of the properties and the structures, and the health, safety, and welfare of the surrounding community. Physical deterioration includes abnormally high business vacancies, abandoned buildings, boarded doors and windows, parked trucks and long-term unauthorized use of the properties and parking lots, extensive or offensive graffiti painted on buildings, dumping of refuse or overturned dumpsters on properties, dead trees and shrubbery, and uncontrolled weed growth or homeless encampments.

- *Vacant land:* Vacant land is generally referred to land with no buildings on it.
- *Zoning designation:* The regulation of the use of real property by local government, which restricts land use to residential, commercial, industrial, or other uses, is affected by the zoning designation allocated to each property. The local governing body considers the character of the property as well as its fitness for particular uses. It must enact the regulations in accordance with a well-considered and comprehensive plan intended to avoid arbitrary exercise of government power.

EXISTING LAND USES

The SCAG region serves as the nation's gateway for global trade. The SCAG region comprises six counties—Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura—and totals approximately 38,000 square miles in area (almost 25 million acres). The region stretches from the state borders with Nevada and Arizona to the Pacific Ocean and from the southernmost edge of the Central Valley to the Mexican border (see Map 2-1, SCAG Region, in Chapter 2, *Project Description*, of this 2024 PEIR). The region includes the county with the largest area in the nation, San Bernardino County, as well as the county with the highest population in the nation, Los Angeles County. The SCAG region includes the second largest city in the nation, Los Angeles, and six additional cities that rank in the top 100 by population: Long Beach (36th), Anaheim (55th), Santa Ana (57th), Riverside (59th), Irvine (91st), and San Bernardino (98th). In addition to its numerous and diverse urban centers that serve as home for the approximately 19 million people, the vast area includes millions of acres of open space and recreational land as well as large amounts of farmland.

The SCAG region comprises complex patterns of land uses including residential, commercial/office, industrial, institutional, agricultural, and open space land uses (see Map 2-7, Existing Land Uses, in Chapter 2, *Project Description*, of this 2024 PEIR). The four largest cities, which provide housing and employment for over half of the population in the SCAG region, are located in the coastal basins that are favored by moderate climate: Los Angeles, Long Beach, Santa Ana, and Anaheim.

While the SCAG region houses nearly half of the state's population, of the 38,000 square miles, the majority of the land is open space, most of that is in public ownership, primarily federal (see Map 3.2-1, Farmland in SCAG Region, in Section 3.2, *Agriculture and Forestry Resources*, of this PEIR, which shows protected open space areas).

Vacant lands account for the majority of overall land available in the SCAG region. Vacant lands include areas that have not been developed with man-made structures and contain no agricultural uses or water bodies. Generally, these areas are open, and contain natural or disturbed natural vegetation. Rangeland is included in this category. Undeveloped areas of parks are also included. Most vacant land is in an undeveloped state, containing native or non-native vegetation such as grasses, herbaceous plants, shrubs, and trees. Vacant lands outside of urban areas may also provide habitat for biological resources. No or few structures or improvements are present. Rangeland may be open land or fenced over large areas. Rangeland vegetation may be no different than open vacant land or may contain grassland for grazing livestock. Additionally, vacant lands include abandoned orchards and vineyards, beaches, and vacant land with limited improvements.

Vacant lands with limited improvements include areas where streets have been laid in a subdivision pattern, but no further building or improvements have occurred over time. Lastly, vacant lands include open undeveloped land within urban areas that are not associated with a particular facility. Typically, these areas are vacant lots. They normally contain no structures but may have such improvements as curbs and sidewalks. The land may be in a graded condition with little or no vegetation or may be in a successional vegetated state, with numerous shrubs

and grasses, growing at different rates, in an unkempt condition. Examples of vacant lands in the SCAG region, include but are not limited to, the region’s national forests, state parks, national parks and monuments, lands administered by the United States Bureau of Land Management (BLM), other public lands, and various private holdings. Some examples of the larger areas of vacant land in the SCAG region include the Los Padres National Forest, Angeles National Forest, Cleveland National Forest, San Bernardino National Forest, Joshua Tree National Park, Death Valley National Park, the East Mojave Preserve, and Anza Borrego Desert State Park. Military lands are included in a separate category and include, but are not limited to, Barstow Marine Corps Logistics Base, Edwards Air Force Base, El Centro Naval Air Facility, Fort Irwin, Los Angeles Air Force Base, March Air Reserve Base, Naval Warfare Assessment Station Corona, Naval Weapons Station Seal Beach, Point Mugu Naval Air Weapons Station, Twentynine Palms Marine Corps Combat Center, and Chocolate Mountains Aerial Gunnery Range. With limited exceptions, the military lands are not open to the public.

As of 2018, farmlands account for approximately 1.1 million acres (see Section 3.2, *Agriculture and Forestry Resources*, of this 2024 PEIR). Approximately 2.3 million acres in the region are developed with a highway network of 74,172 lane miles and transit network of 14,681 route miles (SCAG 2023d).

ESTABLISHED COMMUNITIES

The SCAG region consists of six counties, 191 cities, and 16 tribal nations. As shown in **Table 3.11-1, Summary of Established Communities in the SCAG Region**, the population in the unincorporated territories of the counties and local jurisdictions varies widely by area. The table also shows the newest and oldest communities based on the date of incorporation, and current population for each county.

TABLE 3.11-1 Summary of Established Communities in the SCAG Region

	COUNTY					
	IMPERIAL	LOS ANGELES	ORANGE	RIVERSIDE	SAN BERNARDINO	VENTURA
Total county square miles	4,482	4,751	948	7,303	20,105	2,208
Total 2019 county population	181,000	10,046,000	3,191,000	2,386,000	2,175,000	849,000
Oldest city date of incorporation	City of Imperial – 1904	Los Angeles – 1850	Anaheim – 1876	Riverside – 1883	San Bernardino – 1869	San Buenaventura – 1866
Newest city date of incorporation	City of Westmorland – 1934	Malibu – 1991	Aliso Viejo – 2001	Jurupa Valley – 2011	Yucca Valley – 1991	Moorpark – 1983
Largest city by population (2019)	El Centro – 44,600	Los Angeles – 3,907,300	Anaheim – 347,000	Riverside – 311,100	San Bernardino – 221,200	Oxnard – 202,700
Smallest city by population (2019)	Westmorland – 2,000	Vernon – 200	Villa Park – 5,900	Indian Wells – 4,700	Big Bear Lake – 5,000	Ojai – 7,700
Largest city by square miles	El Centro – 11	Los Angeles – 503	Irvine – 66	Palm Springs – 95	Hesperia – 73	Thousand Oaks – 55
Smallest city by square miles	Westmorland – 5.9	Hawaiian Gardens – 0.96	La Palma – 1.81	Canyon Lake – 5	Grand Terrace – 4	Filmore – 3.3

Sources: SCAG 2023a (Section 5.4 Jurisdiction Growth Forecast)

COUNTIES

The SCAG region is composed of six counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The Plan's policies and strategies encourage improvement in the jobs-housing balance by focusing new housing and employment in Priority Development Areas (PDAs). A general discussion of the land use patterns is provided for each of the six SCAG counties below:

- **Imperial County.** The nature of land use within Imperial County is linked to its rural beginnings, beginning as a farming community. Imperial County is predominantly an agricultural area (Imperial County 2015). However, pressure of growth from nearby San Diego and Riverside Counties have resulted in a significant population boom. Between 2000 and 2019, the County has seen a 27.5-percent population growth (U.S. Census Bureau 2002; SCAG 2023a), higher than the SCAG region rate of 14 percent (SCAG 2021, 2023a). As such, a primary goal as stated in the Land Use Element of the Imperial County General Plan is to “diversify employment and economic opportunities in the County while preserving agricultural activity (Goal 2).”
- **Los Angeles County.** One of the largest counties in the country, Los Angeles County encompasses approximately 4,083 square miles, consisting of 88 incorporated cities (County of Los Angeles 2022) and an unincorporated area that accounts for more than 65 percent of the total land area of Los Angeles County (County of Los Angeles Department of Regional Planning 2023). Los Angeles County is further divided into nine SCAG subregions: North Los Angeles County; San Fernando Valley Council of Governments (COG); Las Virgenes Malibu Conejo COG; Arroyo Verdugo; Westside Cities COG; South Bay Cities COG; City of Los Angeles; San Gabriel Valley COG; and Gateway Cities COG. Between 2000 and 2019, the total population of Los Angeles County increased by 5.5 percent (U.S. Census Bureau 2002; SCAG 2021, 2023a), which was lower than the SCAG region increase of 14 percent. It is also important to note that 53.4 percent of the total 2019 population of SCAG region is in Los Angeles County (SCAG 2021, 2023a).

The unincorporated areas in the northern portion of Los Angeles County are covered by large amounts of sparsely populated land, and include Angeles National Forest, part of Los Padres National Forest, and the Mojave Desert. The unincorporated areas in the southern portion of Los Angeles County consist of many non-contiguous land areas, which are often referred to as the County's unincorporated urban islands. More than half of the unincorporated area is designated for natural resources. The next largest designation is rural, which accounts for approximately 39 percent of the unincorporated areas, followed by residential, which accounts for approximately three percent of the unincorporated areas (County of Los Angeles Department of Regional Planning 2022).

The incorporated areas of Los Angeles represent diverse urban, suburban, and rural land use patterns. Generally, the Land Use Element for each incorporated city encourages the retention of the stable residential neighborhoods and promotes growth to locate in neighborhood districts, commercial and mixed-use centers, along boulevards, industrial districts, and in proximity to transportation corridors and transit stations. These are general characterizations, and do not capture all land use types or patterns associated with the 88 incorporated cities that make up Los Angeles County.

- **Orange County.** Between 2000 and 2019, the total population of Orange County increased by 12.1 percent (U.S. Census Bureau 2002; SCAG 2021, 2023a), which was slightly higher than the SCAG region increase of 14 percent (SCAG 2021, 2023a). The General Plan assessed that Orange County would experience a steady but declining amount of land available for development. The General Plan projected a significant level of new housing is anticipated to be constructed in the south and eastern portions of the County, while infill and redevelopment are identified in the northern and central regions. Significant commercial and industrial development is anticipated to occur along major transportation arteries (Orange County 2005, 2022).

- **Riverside County.** Between 2000 and 2019, the total population of Riverside County increased by 54.4 percent (U.S. Census Bureau 2002; SCAG 2021, 2023a); much higher than the SCAG region increase of 14 percent. Riverside County adopted the County General Plan that strives to create a high-quality, balanced, and sustainable environment for the citizens of Riverside County and to make Riverside County's communities great places to live, work, and play. Riverside County is the fourth largest county in the State, encompassing approximately 7,400 square miles and extending westward from the Colorado River to within 14 miles of the Pacific Ocean, a stretch of some 200 miles. Riverside County contains diverse geographical features, including deserts, snowcapped peaks, deep valleys, forests, and rich agricultural lands. Set among this rich landscape is a variety of established and/or growing urban, suburban, and rural communities. The diversity of Riverside County offers a variety of living environments such as dense urban cities, suburban enclaves, resorts, rural communities, agricultural communities, equestrian communities, and sparsely populated outposts (County of Riverside 2020).
- **San Bernardino.** Between 2000 and 2019, the total county population increased by 27.2 percent (U.S. Census Bureau 2002; SCAG 2021, 2023a); well above the SCAG region increase of 14 percent (SCAG 2021, 2023a). Much of the development in San Bernardino has occurred on unincorporated county land. The General Plan focuses new development in areas where there is infrastructure in place, including potable water, wastewater treatment, roadways, and public services. In addition, new development is focused in areas with low risks from natural and man-made hazards, and with fewer impacts on the natural environment (County of San Bernardino 2020).
- **Ventura County.** Between 2000 and 2019, Ventura County's population growth increase of 12.8 percent (U.S. Census Bureau 2002; SCAG 2021, 2023a) was slightly higher than the SCAG region increase of 14 percent (SCAG 2021, 2023a). Ventura County and cities within the county have developed policies seeking to maintain a balance of protecting agricultural land while providing jobs and housing within a heavily used transportation network. The approach has been to provide urban growth boundaries as a way of channeling development and preserving farmland.

CITIES

There are 191 cities in the six-county area, including the City of Los Angeles, which is the second largest city in the nation and the largest city in California, and the City of Long Beach, which is among the 50 largest cities in the nation and the seventh largest city in California. Urban centers in the SCAG region exist in the form of clusters, linked by freeways and commercial corridors interspersed with identifiable activity centers. Most existing urban development is found along the coastal plains of Los Angeles, Orange, and Ventura Counties, as well as in adjoining valleys that extend inland from the coastal areas. Urban development also has moved into the inland valleys such as the Antelope, San Bernardino, Yucca, Moreno, Hemet–San Jacinto, Coachella, and Imperial Valleys.

Downtown Los Angeles is the largest urbanized center within the SCAG region. Other urbanized areas with substantial density in Los Angeles County include Long Beach, Burbank, Glendale, Pasadena, and Pomona. Office-core centers have emerged in Woodland Hills (Warner Center), Universal City, Westwood, around Los Angeles International Airport (LAX), and Century City. In the other five counties within the SCAG region, urban centers exist in the cities of Riverside, San Bernardino, Santa Ana, Anaheim, Irvine, Oxnard, and Ventura. Development centers in desert areas include the Lancaster–Palmdale corridor in the Antelope Valley (Los Angeles County); the Hesperia–Victorville corridor in Yucca Valley (San Bernardino County); and the Palm Springs–Palm Desert–Indio corridor in the Coachella Valley (Riverside County). El Centro is the county seat and focal point of activity in Imperial County. There is also substantial activity occurring in Imperial County at the three ports of entry along the border with Mexico.

LAND USE PLANNING

Many of the key strategies for coping with climate change are linked to land use planning:

- Growth of vehicle-related GHG emissions are influenced by transportation infrastructure.
- Compact development protects ecologically valuable open space and requires less energy and materials to build and operate.
- Reducing GHG emissions from deforestation requires policies to protect woodlands and other valuable carbon sinks. Carbon sinks are natural or artificial reservoirs that remove and store carbon from the atmosphere, thereby offsetting carbon dioxide emissions. Examples include forests, soils, and oceans.
- Land use planning is critical in enabling communities to adapt to sea level rise, more frequent extreme weather conditions, and other climate-related hazards (Sofian, Li, Kusumawardhani, & Widiyani 2015).
- “Smart growth” is a term that covers a range of development and conservation strategies that help protect the natural environment and make communities more attractive, economically stronger, and more socially diverse. Land use planning is an essential part of any smart growth strategy, and it is especially important when efforts to mitigate GHG emissions and adapt to climate change are needed.

SCAG ROLES AND RESPONSIBILITIES

In addition to the federal designation as an MPO, SCAG is designated under California state law as the Multicounty Designated Transportation Planning Agency and COG for the six-county region. Founded in 1965, SCAG is a Joint Powers Authority, established as a voluntary association of local governments and agencies.

As described in Chapter 1, *Introduction*, SCAG serves as the regional forum for cooperative decision making by local government elected officials and its primary responsibilities in fulfillment of federal and state requirements includes the development of the Plan; the Federal Transportation Improvement Program; the annual Overall Work Program; and transportation-related portions of local air quality management plans. SCAG’s other major functions include developing the Regional Transportation Plans/Sustainable Communities Strategies and ensuring programs are in conformity with state air quality plans; periodic preparation of an RHNA; and intergovernmental review of regionally significant projects.

REGIONAL COOPERATION AND SUBREGIONS

SCAG’s role is to bring stakeholders together and participate in regional planning through collaboration and participation in regional programs and on-going dialogue. SCAG seeks feedback from local elected officials and their staff through 15 subregional organizations that have been recognized by the Regional Council as partners in the regional policy planning process. The subregional organizations represent various parts of the SCAG region that have identified themselves as having common interests and concerns. The subregions vary according to geographical size, number of local jurisdictions, staffing, decision-making structure, and legal status.

Standing committees at SCAG include the Executive Administration Committee, the Transportation Committee, the Community, Economic & Human Development Committee, the Energy & Environment Committee, and Legislative/Communications & Membership Committee. In addition to the standing committees, there are various subcommittees, technical advisory committees, working groups, and task forces that report to the standing committees, while other groups are established on an ad hoc basis to assist with specific projects or address specific regional policy. The Regional Council is SCAG’s governing body. It consists of 86 elected officials,

representing cities, counties, county transportation commissions, transportation corridor agencies, tribal governments, and air districts in the region. The Regional Council has general authority to conduct the affairs of SCAG and directs the actions of the agency throughout the year. Additionally, the Regional Council implements the policy direction provided at the annual General Assembly of the membership, acts upon policy recommendations from SCAG's standing policy committees and external agencies, and appoints subcommittees to study specific programs or issues.

COUNTY AND CITY GENERAL PLANS

Comprehensive land use planning for the SCAG region is provided by county and city general plans, which local governments are required by state law to prepare as a guide for future development. General plans contain goals and policies concerning topics that are mandated by state law or that the jurisdiction has chosen to include. Required topics are land use, circulation, housing, conservation, open space, noise, and safety. Other topics that local governments frequently choose to address include sustainability, public facilities, parks and recreation, community design, and growth management, among others. City and county general plans must be consistent with each other. Local jurisdictions implement their general plans through zoning ordinances. Zoning ordinances provide a much greater level of detail including the general plan land use designations and such information as permitted uses, yard setbacks, and uses that would require a conditional use permit (**Map 3.11-1, General Plan Land Use Designations**, shows the general land use designations (consolidated for purposes of consistency and mapping) for the six SCAG member counties and 191 cities in the SCAG region).

EXISTING LAND USES BY COUNTY

The land use elements of the county and city general plans within the SCAG region generally classify lands in to 35 land use categories (**Table 3.11-2, SCAG Region General Land Use Categories**).

According to SPM data, the Plan would add approximately 50,000 urbanized acres to the region by 2050 (SCAG 2023c). The 35 land use categories noted in Table 3.11-2 are grouped into three Land Development Categories (LDCs) to describe the general conditions in a given area, including urban, compact, and standard LDCs. The following describes the LDCs considered in the Plan (SCAG 2023b):

- **Urban** areas are often found within and adjacent to higher density urban centers. Virtually all 'Urban' growth would be considered infill or redevelopment. The majority of housing units are multifamily and townhome, which tend to consume less water and energy. These areas are typically supported by high levels of transit service, well-connected street networks, and a mix of uses.
- **Compact** areas are less dense than the urban LDC but remain walkable and mixed in use. Compact areas are likely to occur as new growth on the urban fringe or large-scale redevelopments and have a rich mix of housing from multifamily to medium-lot single-family. They are relatively well served by transit but less prevalent around major multimodal hubs. Streets are well-connected and walkable, meaning destinations such as schools, shopping, and entertainment can be reached easily.
- **Standard** areas reflect the auto-oriented development and use-type separation of the American suburban landscape over the past several decades. Densities tend to be lower, land uses are more homogenous, and larger-lot single-family housing comprises the majority of this development form. Standard areas are not typically well served by transit and most trips are made via automobile.

TABLE 3.11-2 SCAG Region General Land Use Categories

GENERAL LAND USE CATEGORY	LAND USE CATEGORY
Residential	Urban Residential City Residential Town Residential Village Residential Neighborhood Residential Suburban Multifamily Suburban Mixed Residential Residential Subdivision Large Lot Residential Rural Residential Rural Ranchettes Neighborhood Low
Mixed Residential and Commercial	Urban Mixed Use City Mixed Use Town Mixed Use Village Mixed Use High Intensity Activity Center Mid Intensity Activity Center
Commercial	Urban Commercial City Commercial Town Commercial Village Commercial Office Focus Low Density Employment Park Low Intensity Retail-Centered Neighborhood Strip Mall/Big Box Retail Rural Employment
Mixed Commercial and Industrial	Mixed Office and R&D Office/Industrial Industrial/Office/Residential Mixed High Industrial/Office/Residential Mixed Low
Industrial	Industrial Focus
Infrastructure and Institutional Land Uses	Campus/University Institutional
Open Space, Agriculture, and Vacant Land Uses	Parks & Open Space

Source: SCAG 2023b

Table Note: Industrial/Office/Residential Mixed uses could also be categorized under Mixed Residential and Commercial category.

The following paragraphs describe the 35 place types that represent the range of existing and potential development types and patterns within the SCAG region. These are then aggregated into the three LDCs to describe the general development or conditions in the area.

RESIDENTIAL LAND USES

The residential pattern of the SCAG region is largely shaped by topography. Most residents live in southern parts of Ventura, Los Angeles, and San Bernardino Counties, with the urban form limited by national forests and mountains. In Orange County, residents live near the coast and west of the Cleveland National Forest. Residents also have moved inland to the high desert in northern Los Angeles and San Bernardino Counties and the low desert in the Coachella and Imperial Valleys.

The majority of medium- and high-density housing in the region is found in the urban core of the region, in Downtown Los Angeles, East Los Angeles, the South Bay, and the “West Side” of Los Angeles. Large cities, such as Long Beach, Santa Ana, Glendale, Oxnard, and Pasadena, also have concentrations of high-density development in their downtown areas. Several beach communities, such as the Cities of Santa Monica, Manhattan Beach, Hermosa Beach, Redondo Beach, Huntington Beach, and Newport Beach, have high density close to the ocean.

Surrounding suburbs are predominantly low-density housing tracts. Low-density housing expands west into Ventura County, east through southeast Los Angeles County, throughout much of Orange County, and through the western Inland Empire. The resort communities and cities of the Coachella Valley in Riverside County also are built primarily on a low-density scale.

The developing land on the urban fringe, such as the Antelope Valley of Los Angeles County and the Victorville-Hesperia area, Lucerne Valley, and Yucca Valley of San Bernardino County, also are primarily low-density residential. The Imperial Valley in Imperial County is primarily an agricultural region with a growing, yet still relatively small, population that lives in primarily low-density developments. The SCAG region also contains mixed residential and commercial land uses.

The residential category of land uses in the SCAG region includes areas of single-family residences, multi-unit dwellings, and mobile homes. Also included is a mixed residential category that consists of two or more of the aforementioned groups.

SINGLE-FAMILY RESIDENTIAL

These residential areas are typically made up of detached dwellings, where each structure houses a single-family, located in an urban or suburban setting. (Single-family residential units located in a rural setting are classified under Rural Residential.) These single-family residences are usually served by all utilities, are on paved streets, and are provided with or have access to all urban facilities such as schools, parks, police, and fire stations.

Single-family residential neighborhoods are normally large contiguous areas of residential lots. Some areas have subdivisions or tracts of homes with similar size or architectural design. In these areas the roofs may be similar in shape or color when viewed on the aerial photo. Typically, single-family lots contain landscaped front and back yards, one driveway, and one walkway either to the sidewalk or to the driveway. Some lots may have swimming pools in the back yards. High or low density is determined by the size of the lot on which the residence is located. If an area is under construction, and the residential lots or pads are easily identifiable, then the area can be properly mapped.

High-Density Single Family Residential. This category contains single-family detached residential units with an approximate unit density of >8 units/acre. These units are typically found in modern urban and suburban subdivisions.

Low-Density Single Family Residential. This category contains single-family detached residential units with an approximate unit density of <3 units/acre. These units may include areas of urban ranch homes or estates. Also included are urban areas where single-family lots have been established but houses have not been built on all of them and are not likely to be built in the near future. The homes are spaced at a density of <2 units/acre. In some situations, a low-density area may be rural in appearance because it was once a rural area but is now within the urban setting or a transitional area.

MULTIFAMILY RESIDENTIAL

Multifamily units are attached residences, apartments, condominiums, and townhouses. Multi-family residences are usually served by all utilities, are on paved streets, and are provided with or have access to all urban facilities such as schools, parks, police, and fire stations. Senior citizen apartment buildings are included in these classes. Also included are off-campus university owned housing and off-campus fraternity/sorority houses.

Mixed Multi-Family Residential. This category is used when there is a mixture of multi-family uses (duplexes, triplexes, apartments, condominiums, and/or townhouses of any type), none of which is over 2.5 acres in size, and no one type dominates. This situation may occur in older neighborhoods.

Duplexes, Triplexes, and 2- or 3-Unit Condominiums and Townhouses. This category is composed of duplexes, triplexes, and 2- or 3-unit condominiums and townhouses that are attached multifamily structures.

Duplex and triplex residences may occur together or mixed with single-family houses in some older neighborhoods. Typically, the multi-unit structure is one story located on a lot approximately the same size as nearby single-family residential lots. There may be minimal landscaping or yard space. On the aerial photo, one may be able to count the driveways, sidewalks, entryway overhangs, chimneys, or air conditioning units corresponding to the number of units in the structure. Some newer duplexes and triplexes occur as 2- or 3-unit structures in complexes as condominiums and townhouses, with common grounds.

Low-Rise Apartments, Condominiums, and Townhouses. This category includes multi-family structures of one to two stories and approximately 10 to 18 units/acre. The area consists of either a large single structure or a group of structures, of four or more units each, in a complex with associated common grounds, facilities and parking areas.

Typically, low-rise apartments, condominiums, and townhouses occur together in large contiguous areas since land use is restricted to multi-family zoned areas. However, in some areas one to a few buildings may occur on individual lots in single-family residential neighborhoods. In newer neighborhoods they may appear as a large complex composed of many structures of similar architecture with common grounds and facilities. Some older structures are U-shaped or O-shaped with a swimming pool in the middle. A parking level may be located underneath the living area, in which case it is not counted as a story. Parking for larger complexes may include garages or carports along the periphery of the complex. Low-rise apartments and condominiums are the most common types of multi-family structures in the study area. Also included are off-campus fraternity/sorority houses and senior citizen apartments. Residential units located above first floor commercial in buildings along a commercial strip are considered commercial use. An area mapped as Low-Rise Apartments, Condominiums, and Townhouses may contain an occasional Medium-Rise building.

Medium-Rise Apartments and Condominiums. This category includes multi-family structures of three to four stories and >18 units/acre. The area consists of a large single structure or a group of structures, of four or more units each, in a complex with associated common grounds, facilities and parking areas.

Many medium-rise apartments and condominiums in older areas are identified as hotel/apartments. Several may be located next to each other in compact areas. Some may occur as large complexes, composed of many structures of similar architecture, with common grounds and facilities. Medium-rise apartments and condominiums are not as common as low-rise. Senior citizen apartments are included. If an area contains commercial use on the first floor and multi-family residential use on the upper floors, then the area is considered strip commercial. Some older urban core cities contain apartment and condominium buildings predominantly of three, four, or more stories. An area mapped as Medium-Rise may contain occasional Low-Rise or High-Rise buildings. Use of stereoscopic viewing of aerial photos is essential in determining relative height in relation to other structures in the area.

High-Rise Apartments and Condominiums. This category includes multi-family structures of five stories or greater and >18 units/acre. The area consists of either a single large structure or a group of adjacent structures with common grounds, facilities and parking areas.

Many high-rise apartments and condominiums occur as single or groups of high residential towers. Parking may be underground or in an adjacent parking structure. Smaller high-rise structures may contain only residential units with no other uses. High-rise residential structures are configured to maximize availability of window access to each individual residential unit. Thus, the building may be long and narrow, or contain narrow lateral wings that provide window access. Senior citizen apartments are included. If an area contains commercial use on the first floor and multi-family residential use on the upper floors, then it is considered High-Rise Apartments and Condominiums.

COMMERCIAL LAND USES

Across the region, commercial development typically follows transportation corridors. Office development generally locates at the terminals of major transportation features, particularly airports and train stations, or at the intersection of major freeways. Downtown Los Angeles is the historical center of jobs in the region. LAX and John Wayne Airport have considerable office clusters around them. Office buildings tend to cluster around major intersections, including areas such as the “El Toro Y” (intersection of the I-5 and the I-405) and the “Orange Crush” (intersection of I-5, SR-22, and SR-57) in Orange County. The SCAG region also contains some mixed commercial and industrial land uses.

INFRASTRUCTURE AND INSTITUTIONAL LAND USES

Institutional land uses, which include large government and private operations, such as military bases, airports, and universities, encompass a considerable footprint in the region. Military operations consume a substantial quantity of land. The 9 active duty military facilities in the SCAG region are listed below (Governor’s Military Council 2023):

- Naval Air Facility El Centro
- Los Angeles Air Force Base
- Joint Forces Training Base Los Alamitos
- Naval Weapons Station Seal Beach
- March Air Force Reserve Base

- Marine Corps Logistics Base Barstow
- Fort Irwin
- Marine Corps Combat Center Twentynine Palms
- Naval Base Ventura County

In addition, land controlled by Edwards Air Force Base, based in Kern County, extends into Los Angeles and San Bernardino Counties. The Chocolate Mountains Aerial Gunnery Range in Imperial and Riverside Counties is also an institutional use that is off-limits to the public.

A substantial quantity of land is dedicated to airports in Los Angeles County. LAX is a major institutional land use prominently located in the County. In the Antelope Valley, a large portion of land is dedicated to airport uses at Palmdale Airport. Bob Hope Airport and Long Beach Airport are the other commercial airports in Los Angeles County. Airports in other parts of the region include Ontario International Airport, Southern California Logistics Airport, and San Bernardino International Airport in San Bernardino County, Palm Springs International Airport and March Inland Port in Riverside County, John Wayne Airport in Orange County, and numerous general aviation airports scattered across the SCAG region.

University and college campuses are located in every county of the SCAG region. The largest are universities in the University of California system (Irvine, Los Angeles, and Riverside) and the California State University system (Channel Islands, Dominguez Hills, Fullerton, Long Beach, Los Angeles, Northridge, San Bernardino, and San Diego-Imperial Valley Campus). In addition, California Polytechnic University at Pomona (one of three polytechnic universities in the California State University system) and the University of Southern California are the other large universities in the region. There are numerous smaller universities and colleges in the region, both public and private, as well as an extensive community college system that spans the SCAG region.

INDUSTRIAL LAND USES

The main focal points of industrial activity in the region are the Ports of Los Angeles and Long Beach. Altogether, these adjacent ports handle approximately 13 percent of the volume imported into the country (USACE 2022). The industrial activity spreads north from the ports along the Alameda Corridor (a 20-mile freight line connecting downtown Los Angeles to the Ports of Los Angeles and Long Beach) and extends east through the City of Industry and the City of Commerce toward San Bernardino County.

Many manufacturing industries, distribution centers, and warehouses have established businesses in Riverside and San Bernardino Counties (also known as the Inland Empire). This activity has made the Inland Empire a distribution center for the region, state, and nation. Adding to the goods coming by highway and rail through San Bernardino County are goods coming to the county by air through several airports that cater to air cargo, primarily Ontario International Airport. Industrial uses tend to cluster around cargo-handling airports to take advantage of transportation options.

Significant air cargo and associated industrial land uses also are located around LAX. A third port in the region, located in Port Hueneme in Ventura County, is also surrounded with industrial activity.

Along the Mexican border, the three ports of entry in Imperial County have large amounts of commerce going back and forth between the two countries.

Extraction activities in the region focus on oil and minerals. Ventura County has extensive extraction activities in the far southwestern part of the county and along Route 126. These activities extend into Los Angeles County to the area around the City of Santa Clarita. Oil wells and oil refineries remain across southern Los Angeles County. Oil drilling and refining also takes place in Orange County, near Huntington Beach, Newport Beach, and Brea. Significant mining operations take place in the eastern portion of Imperial County. Wind energy generation facilities are located in the San Geronio Pass between Banning and Palm Springs.

OPEN SPACE, RECREATION, AND AGRICULTURAL LAND USES

There are vast areas of open space, recreation, and agricultural land uses throughout the SCAG region (Map 2-10, Green Region Resource Areas, in Chapter 2, *Project Description*). Open spaces vary in size and location and generally include but are not limited to public parks, recreational facilities, national forests, national parks, national monuments, military reservations, and other areas planned for such uses. Some open spaces comprise lands that have been acquired by public agencies or private institutions for long-term management as open space. Other open space comprises land designated for passive and active recreation. In addition, there are undeveloped areas in the SCAG region that are natural lands, designated for land uses other than open space or recreation.

Agriculture may be included as open space depending on the location and use. Agriculture may range from open grasslands and rangelands used for livestock grazing to areas supporting row and tree crops. These lands, although agricultural in use, may also provide some habitat value, particularly open grasslands grazing land and rangelands. In yet other instances, lands may be designated or zoned as open space but still allow for development of a single-family home. Lands evaluated as natural lands in the Plan are generally evaluated as wildlife habitat in Section 3.4, *Biological Resources*, and not agricultural lands. In general, in this 2024 PEIR, agricultural lands are farmlands, and natural lands provide valued habitat.

Farmlands and rangelands are agricultural lands that are part of the region's open landscape and entail various types and degrees of modifications to natural lands. Also discussed in Section 3.2, *Agriculture and Forestry Resources*, farmlands include irrigated and non-irrigated crop production. Rangelands include any expanse of natural land that is not fertilized, irrigated, or cultivated and is predominately used for grazing by livestock and wildlife.

The distribution of farmlands and rangelands in the SCAG region and vicinity is based primarily on data provided by the California Department of Conservation (DOC). It also provides a summary of existing plans and programs in the region to conserve agricultural lands, plus a summary of growth management plans in other states that include provisions for conserving agricultural lands.

As discussed in Section 3.2, *Agricultural Resources*, of this 2024 PEIR, the SCAG region maintains over 2.6 million acres of agricultural land as of 2018, which includes approximately 1.1 million acres of Farmland and approximately 1.50 million acres of grazing land/rangeland, with over 100,000 parcels of land designated as either Farmland or grazing land/rangeland (DOC 2023).

There is substantially more farmland than rangeland in Riverside and Imperial Counties and the reverse in Los Angeles, Orange, San Bernardino, and Ventura Counties. By comparison, Kern County has more farmland than the six SCAG counties combined and also has more total acres of rangeland.

Historically, development patterns in the region have been tied as much to the conversion of agricultural lands as to the consumption of natural lands for urban uses. A key issue in the region today is whether the high rate of farmland conversion in recent years can be slowed to prevent irreversible losses. The Plan anticipates that some

of the existing natural and farmlands in the region will convert to urban uses as the region grows to accommodate 1.6 million additional households (SCAG 2023c).

TRIBAL LANDS

Approximately 266,112 acres, or 416 square miles, of the SCAG region consist of tribal lands from 16 tribal nations (**Table 3.11-3, Tribal Lands within the SCAG Region**, lists the name, county, and acreage of tribal lands within the SCAG region. Indian Trust Assets (ITA) include land, natural resources, money, or other assets held by the federal government in trust or that are restricted against alienation for Indian tribes or individuals (U.S. Bureau of Reclamation 2007). United States Department of Interior (USDOI) Order No. 3175 requires all its bureaus and offices to explicitly address anticipated effects on ITAs in planning, decision, and operation documents (U.S. Bureau of Reclamation 2007). The Bureau of Indian Affairs develops inventories of ITAs for all Indian tribes. Tribes must conduct soil and range inventories, land evaluations and range utilization; collect data about soil productivity, erosion, stability problems, and other physical land factors for program development, conservation planning, and water rights claims settlements. In addition, tribes are required to develop land management plans (Bureau of Indian Affairs 2023).

TABLE 3.11-3 Tribal Lands within the SCAG Region

NAME	COUNTY	ACRES
Agua Caliente	Riverside	31,521
Augustine	Riverside	645
Cabazon	Riverside	1,936
Cahuilla	Riverside	18,485
Chemehuevi	San Bernardino	30,823
Colorado River	Riverside	19,409
Colorado River	San Bernardino	28,598
Fort Mojave	San Bernardino	6,193
Fort Yuma	Imperial	42,737
Morongo	Riverside	31,439
Pechanga	Riverside	4,454
Ramona	Riverside	548
San Manuel	San Bernardino	673
Santa Rosa	Riverside	10,916
Soboba	Riverside	5,818
Torres-Martinez	Imperial	10,243
Torres-Martinez	Riverside	21,286
Twenty-Nine Palms	Riverside	227
Twenty-Nine Palms	San Bernardino	161

Source: SCAG 2022

Sixteen tribal lands and their respective governments are in the SCAG region, including the Agua Caliente Band of Cahuilla Indians, Augustine Band of Mission Indians, Cabazon Band of Mission Indians, Cahuilla Band of Mission

Indians, Chemehuevi Reservation, Colorado River Reservation, Fort Mojave Indian Tribe, Fort Yuma Reservation, Morongo Band of Mission Indians, Pechanga Band of Luiseno Indians, Ramona Band of Mission Indians, San Manuel Band of Mission Indians, Santa Rosa Band of Mission Indians, Soboba Band of Luiseno Indians, Torres-Martinez Desert Cahuilla Indians, and Twenty- Nine Palms Band of Mission Indians.

COASTAL PROGRAMS

The Coastal Program in the SCAG region consists of approximately 350,956 acres, or 548 square miles, and includes the islands off the Southern California coast. The Coastal Program affects Ventura, Los Angeles, and Orange Counties in addition to 26 incorporated cities (**Table 3.11-4, Cities in the SCAG Region with Coastal Zone Jurisdiction**). Each local jurisdictional authority (city or county) with lands within the coastal zone is required to develop, and comply with, a coastal management plan. The Coastal Act requires that any person or public agency proposing development within the Coastal Zone obtain a Coastal Development Permit (CDP) from either the California Coastal Commission (CCC) or the city or county having the jurisdictional authority to issue a CDP. To comply with the federal Coastal Zone Management Act (CZMA), localities develop local coastal plans (LCPs) (PRC Section 30000 et seq.).

TABLE 3.11-4 Cities in the SCAG Region with Coastal Zone Jurisdiction

NAME	COUNTY
Avalon	Los Angeles
El Segundo	Los Angeles
Hermosa Beach	Los Angeles
Long Beach	Los Angeles
Los Angeles	Los Angeles
Malibu	Los Angeles
Manhattan Beach	Los Angeles
Palos Verdes Estates	Los Angeles
Rancho Palos Verdes	Los Angeles
Redondo Beach	Los Angeles
Santa Monica	Los Angeles
Torrance	Los Angeles
Aliso Viejo	Orange
Costa Mesa	Orange
Dana Point	Orange
Huntington Beach	Orange
Irvine	Orange
Laguna Beach	Orange
Laguna Niguel	Orange
Newport Beach	Orange
San Clemente	Orange
San Juan Capistrano	Orange

NAME	COUNTY
Seal Beach	Orange
Oxnard	Ventura
Port Hueneme	Ventura
Ventura	Ventura

Source: CCC 2019

REGIONAL HABITAT CONSERVATION PLANS AND MULTIPLE SPECIES HABITAT CONSERVATION PLANS

Habitat conservation plans (HCP) and natural community conservation plans (NCCP) are discussed more fully in Section 3.4, *Biological Resources*, of this 2024 PEIR. There are 31 HCPs and NCCPs within the SCAG region (see Table 3.4-7, HCPs and NCCPs in the SCAG Region, in Section 3.4). As a group, these plans provide protection for multiple species by conserving habitats, identifying locations for future mitigation efforts, providing conservation guidance and practices, and preserving important wildlife linkages. More than 20 million acres of open space within the SCAG region are currently protected under an HCP or NCCP or will be protected by a future HCP or NCCP that is currently in its planning stages.

WESTERN RIVERSIDE COUNTY MULTIPLE SPECIES HABITAT CONSERVATION PLAN

Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) is part of a comprehensive planning effort to address species conservation, land use, and transportation. The integration of thoughtful conservation planning with urban development and transportation is providing a more efficient, streamlined, cost-effective way of planning for the future. Approximately \$2.2 billion has been spent on 25 large transportation projects within the Western Riverside County MSHCP. Through the streamlined permitting process, it is estimated that federal and state agencies, and other non-federal landowners saved between \$126 million and \$278 million on these important infrastructure projects (Regional Conservation Authority 2003).

LOWER COLORADO RIVER MSHCP

On April 4, 2005, the Secretary of the Interior and representatives from agencies within Arizona, California, and Nevada implemented the Lower Colorado River Multi-Species Conservation Program (LCR MSCP). The LCR MSCP was created to balance the use of the Colorado River water resources with the conservation of native species and their habitats. The program area extends over 400 miles of the lower Colorado River from Lake Mead in Nevada, through southern California, to the southernmost border with Mexico. The HCP calls for the creation of over 8,100 acres of habitat for fish and wildlife species and the production of over 1.2 million native fish to augment existing populations. The U.S. Bureau of Reclamation is the implementing agency for the LCR MSCP (Lower Colorado River Multi-Species Conservation Program 2022).

ORANGE COUNTY SOUTHERN SUBREGION HCP

The Orange County Southern Subregion HCP was approved in 2007 for a 75-year permit. This HCP is a program that established a permanent habitat reserve and perpetual land management program. This regional HCP covers large tracts of land in the County of Orange and the family-held Rancho Mission Viejo. Benefits provided by this HCP include the creation of a subregion habitat reserve program including conservation of coastal California gnatcatcher habitat (USFWS 2007).

ORANGE COUNTY CENTRAL-COASTAL HCP/NCCP

In the 27 years since the Orange County Central-Coastal HCP/NCCP was completed, numerous regional HCPs have been approved or are in development throughout California. The NCCP program has also expanded to address a broad range of important natural habitats throughout the state (USFWS 1996).

COACHELLA VALLEY MSHCP

The Coachella Valley MSHCP was adopted in 2008 and preserves over 240,000 acres of natural habitat in the Coachella Valley. This MSHCP protects 27 sensitive plant and animal species. This plan is managed by the Coachella Valley Conservation Commission (Coachella Valley Conservation Commission 2023).

DESERT RENEWABLE ENERGY CONSERVATION PLAN

The Desert Renewable Energy Conservation Plan (DRECP), a part of BLM, was undertaken due to statewide and national concerns regarding habitat fragmentation and loss of habitat for listed and candidate species. The DRECP is a landscape-level plan that streamlines renewable energy development, conserves valuable desert ecosystems, and provides outdoor recreation opportunities. The DRECP was developed by BLM, the U.S. Fish and Wildlife Service (USFWS), the California Energy Commission (CEC), and the California Department of Fish and Wildlife (CDFW), collectively known as the Renewable Energy Action Team (REAT). Revisions to the Final Environmental Impact Statement, released in November of 2015, were made as a result of internal reviews, protests, Areas of Critical Environmental Concern (ACEC) public comments and other public feedback (BLM2021). The DRECP is a proposed MSHCP intended to conserve threatened and endangered species and natural communities in the Mojave and Colorado Desert regions of Southern California, while also facilitating the timely permitting of renewable energy projects to help meet the state's goal of providing at least 33 percent of electricity generation through renewable energy by 2020, 50 percent by 2026, and 100 percent by 2045, as well as the federal government's goal of increasing renewable energy generation on public land. As planned, the approved DRECP and associated permits would provide renewable energy developers and entities undertaking DRECP conservation efforts with authorization for the incidental take of certain endangered, threatened, and special-status plant and animal species for covered activities (as defined in the DRECP). Such authorizations would be granted by agencies that are formal participants in the DRECP (CEC 2015).

CALIFORNIA DESERT CONSERVATION AREA PLAN

The California Desert Conservation Area Plan is used to manage BLM-controlled areas. BLM also implements biological resource management policies through its designation of ACECs (BLM 1980).

West Mojave Plan. The West Mojave Plan is an amendment to BLM's California Desert Conservation Area Plan. The West Mojave Plan also has a proposed HCP component that, if and when finalized, would provide a program for complying with the federal ESA on private lands within the West Mojave Plan area. Together, the West Mojave Plan and the proposed HCP component would cover over 9 million acres north of the Los Angeles metropolitan area with a purpose of creating a comprehensive strategy to conserve and protect almost 100 sensitive desert species and natural communities (BLM 2006).

3.11.2 REGULATORY FRAMEWORK

FEDERAL

UNITED STATES DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F) OF 1966 [49 UNITED STATES CODE [USC] SECTION 303]

The Department of Transportation Act was enacted to preserve the natural beauty of the countryside, public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) requires a comprehensive evaluation of all environmental impacts resulting from federal-aid transportation projects administered by the Federal Highway Administration (FHWA), Federal Transit Administration, and Federal Aviation Administration that involve the use—or interference with use—of the following types of land.

- Public park lands
- Recreation areas
- Wildlife and waterfowl refuges
- Publicly or privately owned historic properties of federal, state, or local significance

ENDANGERED SPECIES ACT OF 1973 (16 USC SECTION 1531 ET SEQ.)

The Federal Endangered Species Act (FESA) was established by Congress in order to “provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved [and] to provide a program for the conservation of such ... species.” USFWS administers the FESA, which designates critical habitat for Endangered species. This enables USFWS to carry out its mission to conserve, protect, and enhance the nation’s fish and wildlife and their habitats for the continuing benefit of people. Critical habitat areas cannot be disturbed without permission from the USFWS and other federal agencies, depending on land ownership. The USFWS also manages a system of land and waters for the conservation of wildlife and associated ecosystems. These National Wildlife Refuges are primarily managed for the preservation and protection of unique or important resources and ecosystems. HCPs, established under Section 10(a)(1)(B) of the FESA, are planning documents that provide for partnerships with non-federal parties to conserve the ecosystems upon which listed (and candidate) species depend, ultimately contributing to their recovery. The USFWS requires HCPs as part of an application for an incidental take permit. HCPs describe the anticipated effects of the proposed taking, how those impacts will be minimized or mitigated, and how the HCP is to be funded. HCPs may be prepared on a project level when projects will require the acquisition of an Incidental Take Permit. Regional HCPs may also be prepared in an effort to protect threatened and endangered species during the land use planning process.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT ACT

The Department of Housing and Urban Development Act created the U.S. Department of Housing and Urban Development (HUD) as a Cabinet-level agency. HUD is responsible for national policy and programs that address housing needs in the U.S. HUD is responsible for enforcing fair housing laws. HUD plays a major role in supporting homeownership by underwriting homeownership for lower- and moderate-income families through its mortgage insurance programs.

UNIFORM RELOCATION ASSISTANCE AND REAL PROPERTY ACQUISITION POLICIES ACT

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S. Code, Section 4601 et seq.), passed in 1970 and amended in 1987, is intended to provide for uniform and equitable treatment for persons displaced through federally funded or assisted transportation and redevelopment projects that require property acquisition. The act lays out rules for notification, relocation counseling, social services or assistance for disabled residents, and compensation for replacement housing and moving costs. The rules stipulate that replacement housing must be comparable to previous housing in terms of location, size, access to jobs and public facilities, and must be “decent, safe, and sanitary.” The rules apply if federal funds are in any phase of the program or project, even if the property acquisition itself is not federally funded.

FEDERAL COASTAL ZONE MANAGEMENT ACT

The CZMA ([16 USC 1451–1464](#), Chapter 33; Public Law 92-583, October 27, 1972; 86 Stat. 1280), administered by the National Oceanic and Atmospheric Administration, provides for the management of the nation’s coastal resources, including the Great Lakes. The goal is to “preserve, protect, develop, and where possible, to restore or enhance the resources of the nation’s coastal zone.” The CZMA outlines three national programs, the National Coastal Zone Management Program, the National Estuarine Research Reserve System, and the Coastal and Estuarine Land Conservation Program (CELCP). The National Coastal Zone Management Program aims to balance competing land and water issues through state and territorial coastal management programs, the reserves serve as field laboratories that provide a greater understanding of estuaries and how humans impact them, and CELCP provides matching funds to state and local governments to purchase threatened coastal and estuarine lands or obtain conservation easements.

FEDERAL LAND POLICY AND MANAGEMENT ACT, AS AMENDED

The Federal Land Policy and Management Act (FLPMA) (Public Law 94-579) governs how public lands administered by BLM are managed. The FLPMA provides guiding principles for BLM land management including multiple use, sustained yield, and environmental protection. The intent of FLPMA is to ensure that BLM manages public lands so that they are utilized in the combination that will best meet the present and future needs of the American people for renewable and non-renewable natural resources.

FLPMA addresses topics such as land use planning, land acquisition, fees and payments, administration of federal land, range management, and rights-of-way on federal land. FLPMA has specific objectives and time frames in which to accomplish these objectives, giving it more authority and eliminating the uncertainty surrounding BLM’s role in wilderness designation and management.

CODE OF FEDERAL REGULATIONS TITLE 25

Federally recognized Native American tribes are considered domestic dependent nations. Tribal sovereignty refers to tribes’ right to govern themselves, define their own membership, manage tribal property, and regulate tribal business and domestic relations; it further recognizes the existence of a government-to-government relationship between such tribes and the federal government. In general, state and local governments do not have “civil regulatory” jurisdiction (i.e., land use) on Indian Land, which is land held in trust or restricted status for a tribe.

FHWA NATIONAL SCENIC BYWAYS PROGRAM

The FHWA National Scenic Byways Program, which was established in Title 23, Section 162 of the United States Code under the Intermodal Transportation Efficiency Act of 1991, is a grassroots collaborative effort that designates selected highways as “All American Road” (a roadway that is a destination unto itself), America’s Byways or “National Scenic Byway” (a roadway that possesses outstanding qualities that exemplify regional characteristics).

BLM SCENIC AREAS AND BACK COUNTRY BYWAYS

BLM designates some of its holdings as Scenic Areas and some roadways in remote areas as Back Country Byways. The BLM Back Country Byways Program was established in 1989 and is a component of the National Scenic Byways Program. The counties of San Bernardino, Riverside, and Imperial in the SCAG region include land with such BLM designations.

UNITED STATES FOREST SERVICE NATIONAL SCENIC BYWAYS PROGRAM

The U.S. Forest Service also has a National Scenic Byways Program, independent from the BLM program, which was established in 1995 under the Intermodal Transportation Efficiency Act of 1991 to indicate roadways of scenic importance that pass through national forests. The SCAG region includes Forest Service Scenic Byways in the counties of San Bernardino, Ventura, Los Angeles, and Riverside.

STATE

CALIFORNIA COASTAL ACT

The California Coastal Act constitutes the California Coastal Management Program for the purposes of the Federal Coastal Zone Management Act (California Coastal Act of 1976; PRC Section 30000 et seq.). The act established CCC, identified a designated California Coastal Zone, and established CCC’s responsibility to include the preparation and ongoing oversight of a Coastal Plan for the protection and management of the Coastal Zone. Each local jurisdictional authority (city or county) with lands within the coastal zone is required to develop, and comply with, a coastal management plan. The Coastal Act requires that any person or public agency proposing development within the Coastal Zone obtain a CDP from either the CCC or the city or county having the jurisdictional authority to issue a CDP. New school construction in portions of the South Los Angeles Unified School District areas could require a CDP. Any construction within the Coastal Zone must conform to the requirements of the California Coastal Act generally, and Chapter 3, Section 6 (Development) specifically. On or near the shoreline, coastal-dependent developments have priority over those uses not dependent on a coastal location (PRC Section 30255). To comply with the Coastal Zone Management Act, localities develop LCPs.

NATURAL COMMUNITY CONSERVATION PLANNING ACT, AS AMENDED

The Natural Community Conservation Planning Act of 1991, as amended in 2003 (California Fish and Game Code Section 2800-2835) established the Natural Community Conservation Planning program for the protection and perpetuation of the state’s biological diversity. CDFW established the program in order to conserve natural communities at the ecosystem level while accommodating compatible land use. An NCCP identifies and provides for the regional or area-wide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. The CDFW provides support, direction, and guidance to participants in order to ensure that NCCPs are consistent with the state ESA.

MODERNIZATION OF TRANSPORTATION ANALYSIS FOR TRANSIT-ORIENTED INFILL PROJECTS SENATE BILL 743

On September 27, 2013, Governor Brown signed Senate Bill (SB) 743. To further the state’s commitment to the goals of SB 375 and AB 32, SB 743 adds Chapter 2.7, Modernization of Transportation Analysis for Transit-Oriented Infill Projects, to PRC Division 13, Section 21099. Key provisions of SB 743 include reforming aesthetics and parking CEQA analyses for urban infill projects and eliminating the measurement of auto delay, including level of service, as a metric that can be used for measuring traffic impacts in transit priority areas. SB 743 provides that, “aesthetics and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment.” This means that, effective January 1, 2014, aesthetics and parking will no longer be considered in determining if a project has the potential to result in significant environmental effects provided a project meets all of the following three criteria:

- a) The project is in a transit priority area;
- b) The project is on an infill site; and
- c) The project is residential, mixed-use residential, or an employment center.

CEQA STREAMLINING FOR INFILL PROJECTS SB 226

The CEQA Streamlining for Infill Projects (SB 226) sets forth a streamlined review process for infill projects and includes performance standards that will be used to determine an infill project’s eligibility for streamlined review. The purpose of SB 226 and updated CEQA Guidelines Section 15183.3 is to streamline the environmental review process by “limiting the topics subject to review at the project level where the effects of infill development have been addressed in a planning level decision or by uniformly applicable development policies.” Residential, commercial and retail, public office buildings, transit stations, and schools are eligible for this streamlining provided they meet the following requirements: (1) are located in an urban area on a site that has been previously developed or adjoins existing qualified urban uses on at least 75 percent of the site’s perimeter; (2) satisfy the performance standards provided in Appendix M of CEQA; and (3) are consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy, with some exceptions.

Under SB 226, some development and transportation projects assumed as a part of the Plan may be eligible to use a streamlined version of the environmental review process.

HOUSING ELEMENT LAW

The Housing Element Law is discussed in detail in Section 3.14, *Population and Housing*.

REGIONAL HOUSING NEEDS ASSESSMENT

The California Legislature developed the RHNA process (Government Code Section 65580 et seq.) to address the affordable housing shortage in California. See Section 3.14, *Population and Housing*, for discussion of the RHNA as well as recent legislation regarding housing.

ENVIRONMENTAL JUSTICE IN LOCAL LAND USE PLANNING (SB 1000)

State law defines environmental justice as “the fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development adoption, implementation, and

enforcement of environmental laws, regulations, and policies.” Signed in 2016 and effective on January 1, 2018, SB 1000 focuses on environmental justice in local land use planning. The primary purpose of SB 1000 is to address the inequitable distribution of pollution and associated health effects in low-income communities and communities of color. In addition, the legislation serves to facilitate transparency and public engagement in local governments’ planning and decision making processes, reduce harmful pollutants and the associated health risks in environmental justice communities, and promote equitable access to health-inducing benefits, such as healthy food options, housing, public facilities, and recreation.

SB 1000, which is codified in Government Code Section 63502(h), requires jurisdictions with disadvantaged communities to either include an environmental justice element in their general plan or incorporate environmental justice goals, policies, and objectives throughout other general plan elements. SB 1000 is triggered when a jurisdiction concurrently adopts or revises two or more general plan elements if there is one or more disadvantaged communities within the jurisdiction. A “disadvantaged community” is an area identified by the California Environmental Protection Agency as such or that is a low-income area disproportionately affected by environmental pollution and other hazards that may lead to negative health effects or environmental degradation within its planning area.

Once the law is triggered, a jurisdiction must (1) identify the disadvantaged communities within its planning area, (2) identify objectives and policies to reduce unique or compounded health risks in disadvantaged communities, (3) identify objectives and policies to promote civic engagement in the public decision-making process, and (4) identify objectives and policies that prioritize improvements and programs addressing the needs of disadvantaged communities.

SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT

A detailed discussion of the Sustainable Communities and Climate Protection Act of 2008 (SB 375, Chapter 728, Statutes of 2008) is provided in Section 3.8, *Greenhouse Gas Emissions*. As discussed in Section 3.8, SB 375 seeks to align transportation, housing, and other land uses to achieve regional GHG emission reduction targets. In addition, SB 375 requires California metropolitan planning organizations to develop a sustainable communities strategy (SCS) as part of the regional transportation plan (RTP), with the purposes of identifying policies and strategies to reduce per capita passenger vehicle-generated GHG emissions. The SCS must:

- Identify the general location of land uses, residential densities, and building intensities within the region;
- Identify areas within the region sufficient to house all the population of the region;
- Identify areas within the region sufficient to house an eight-year projection of the regional housing need;
- Identify a transportation network to service the regional transportation needs;
- Gather and consider the best practically available scientific information regarding resources areas and farmland in the region;
- Consider the state housing goals;
- Set forth a forecasted development pattern for the region; and
- Allow the regional transportation plan to comply with the federal Clean Air Act of 1970 (42 USC Section 7401 et seq.).

The forecasted regional development pattern in the SCS, when integrated with the transportation network and other transportation measures and policies, must reduce the GHG from automobiles and light duty trucks to achieve the GHG emission reduction targets approved by the California Air Resources Board (CARB). If the SCS does not achieve the GHG emission targets set by CARB, an Alternative Planning Strategy must be developed to demonstrate how the targets could be achieved. SB 375 also imposes a number of new requirements on the regional housing needs process. Before SB 375, the regional transportation plan and regional housing needs processes were not required to be coordinated.

SB 375 now synchronizes the schedules of the RHNA and regional transportation plan processes. The RHNA, which is developed after the regional transportation plan, must also allocate housing units within the region consistent with the forecasted regional development pattern included in the SCS. Previously, the RHNA determination was based on population projections produced by DOF. SB 375 requires the determination to be based upon population projections by DOF and regional population forecasts used in preparing the regional transportation plan. If the total regional population forecasted used in the regional transportation plan is within a range of three percent of the regional population forecast completed by DOF for the same planning period, then the population forecast developed by the regional agency and used in the regional transportation plan shall be the basis for the determination. If the difference is greater than three percent, then the two agencies shall meet to discuss variances in methodology and seek agreement on a population projection for the region to use as the basis for the RHNA determination. If no agreement is reached, then the basis for the RHNA determination shall be the regional population projection created by DOF.

Existing law requires local governments to adopt a housing element as part of their general plan. Unlike the rest of the general plan, where updates sometimes occur at intervals of 20 years or longer, under previous law the housing element was required to be updated as frequently as needed and no less than every five years. Under SB 375, this period has been lengthened to eight years and timed so that the housing element period begins no less than 18 months after adoption of the regional transportation plan to encourage closer coordination between the housing and transportation planning done by local governments and MPOs. SB 375 also changes the implementation schedule required in each housing element. Previous law required the housing element to contain a program which set forth a 5-year schedule to implement the goals and objectives of the housing element. The new law instead requires this schedule of actions to occur during the eight-year housing element planning period, and requires each action have a timetable for implementation.

REGIONAL CONSERVATION INVESTMENT STRATEGY PROGRAM

On September 22, 2016, the Governor signed AB 2087, which created CDFW's Regional Conservation Investment Strategy (RCIS) pilot program and was amended by SB 103 on July 21, 2017. The program uses a science-based approach to identify conservation and enhancement opportunities that, if implemented, will help California's declining and vulnerable species by protecting, creating, restoring, and reconnecting habitat and may contribute to species recovery and adaptation to climate change and resiliency. The program consists of three components: regional conservation assessments (RCA), RCISs, and mitigation credit agreements (MCA). An RCA is a voluntary, non-regulatory, non-binding conservation assessment that includes information and analyses of important species, ecosystems, protected areas, and habitat linkages at the United States Department of Agriculture ecoregion scale and may include more than one ecoregion. An RCIS is a voluntary, non-regulatory, and non-binding conservation assessment that includes information and analyses relating to the conservation of focal species, their associated habitats, and the conservation status of the RCIS land base. An RCIS establishes biological goals and objectives at the species level and describes conservation actions and habitat enhancement actions that,

if implemented, will contribute to those goals and objectives. An MCA is developed under an approved RCIS. An MCA is developed in collaboration with CDFW to create mitigation credits by implementing the conservation or habitat enhancement actions identified in an RCIS (CDFW 2023a).

ENHANCED INFRASTRUCTURE FINANCING DISTRICTS

Enacted on September 29, 2014, the Enhanced Infrastructure Financing Districts (SB 628; Chapter 2.99 [commencing with Section 53398.50] to Part 1 of Division 2 of Title 5 of the Government Code) allows the legislative body of a city or a county, defined to include a city and county, to establish an infrastructure financing district, adopt an infrastructure financing plan, and issue bonds to finance public facilities upon approval by two-thirds of a jurisdiction's voters. Additionally, a city or county is authorized to issue bonds upon approval by 55 percent of the voters, for which only the district is liable; to finance public capital facilities or other specified projects of communitywide significance, including, but not limited to, brownfield restoration and other environmental mitigation; the development of projects on a former military base; the repayment of the transfer of funds to a military base reuse authority; the acquisition, construction, or rehabilitation of housing for persons of low and moderate income for rent or purchase; the acquisition, construction, or repair of industrial structures for private use; transit priority projects; infrastructure maintenance, and projects to implement a sustainable communities strategy, such as climate adaptation projects. The bill authorizes an enhanced infrastructure financing district to utilize any powers under the Polanco Redevelopment Act.

LOCAL

GENERAL PLANS AND LAND USE REGULATIONS

The legal framework in which California cities and counties exercise local planning and land use functions is provided in the California Planning and Zoning Law (California Government Code Section 65000 et seq.) Under state planning law, each city and county is required to adopt a general plan "for the physical development of the county or city, and any land outside its boundaries which bears relation to its planning" (California Government Code Section 65300 et seq.).

The general plan expresses the community's development goals and embodies public policy relative to the distribution of future land uses, both public and private. Government Code Section 65302 requires that a general plan include the following seven elements: land use, circulation, housing, conservation, open space, noise, and safety. Government Code Section 65302 requires that environmental justice be addressed as a standalone element or integrated into the goals, policies, and objectives throughout other elements if a community has identified disadvantaged communities within their jurisdiction. Other elements may be included at the discretion of the jurisdiction that relate to the physical development of the county or city. The general plan must be comprehensive and internally consistent. Of particular importance is the consistency between the circulation and land use elements; the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other public utilities and facilities must be consistent with the general distribution and intensity of land used for housing, business, industry, open space, education, public areas, waste disposal facilities, agriculture, and other public and private uses.

COMMUNITY PLANS, SPECIFIC PLANS, AND MASTER PLANS

A city or county may also provide land use planning by developing community or specific plans for smaller, more specific geographic areas within their jurisdiction. (California Government Code Section 65450). These more

Localized plans provide for focused guidance for developing a specific area, with development standards tailored to the area, as well as systematic implementation of the general plan. Local jurisdictions and private developers may also choose to partner in the development of a master plan that shows an overall development concept that includes urban design, landscaping, infrastructure, service provision, circulation, present and future land use and built form. It consists of three-dimensional images, texts, diagrams, statistics, reports, maps and aerial photos that describe how a specific location will be developed. It provides a structured approach and creates a clear framework for developing an area.

ZONING

Every local jurisdiction within the region has land use regulations that implement the general plan policies at the level of the individual parcel. The zoning ordinance is the primary land use regulation used to implement the goals and policies of its general plan. Zoning ordinances, which are required to be consistent with the general plan, provide detailed direction related to development standards; permitted, conditionally permitted, and prohibited uses; and other regulations such as parking standards and sign regulations. Zoning ordinances and land use approvals must be consistent with applicable specific plans as well as the general plan.

Local jurisdictions are also required to comply with the Subdivision Map Act (California Government Code Section 66410 et seq.). The Subdivision Map Act sets forth the conditions for approval of a subdivision map and requires enactment of subdivision ordinances by which local governments have direct control over the types of subdivision projects to be approved and the physical improvements to be installed.

3.11.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to land use and planning if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Physically divide an established community.
- Cause a significant environmental impact due to conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, forecasted regional development pattern, individual transportation projects, and Regional Planning Policies and Implementation Strategies. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions (2022).

Impacts to land use and planning were evaluated in accordance with Appendix G of the 2023 CEQA Guidelines. Land use impacts within the SCAG region were evaluated at a programmatic level of detail, in relation to the

General Plans of the six counties and the 191 cities within the SCAG region; and a review of related literature germane to the SCAG region.

A qualitative evaluation of land use impacts resulting from the Plan was conducted with a focus on potential physical impacts on the environment, including direct and indirect impacts. The analysis of land use and planning considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies, some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan. See CEQA Guidelines Section 15126.4(a)(1)(B). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT LU-1 **Potential to physically divide an established community.**

Significant and Unavoidable Impact – Mitigation Required

Physical division of an established community could occur as a result of physical or perceived barriers to pedestrians, bicyclists, and motorists. Short-term construction-related impacts could result from disturbances due to construction equipment; these impacts are discussed under other impact categories (e.g., Noise, Aesthetics, and Air Quality). Long-term impacts could result from the completion of new or expanded roadways or transit facilities in existing communities; large scale development with impenetrable edges can also form barriers within communities. Also, if freeway routes, particularly those that occur in rural areas, are widened, they can create a real or perceived barrier to pedestrians, bicyclists, and motorists. Freeway segments that would occur in rural areas, including new highway and roadway projects, also have the potential to create physical barriers. Such additions of new roadways or expansion of existing roadways may be perceived as a great distance to cross by a pedestrian (whereas it may not have been perceived as an issue previously), thereby dividing a community. Implementation of transportation projects, and the Plan's emphasis on expanded transit could expand urban uses into undeveloped areas and has the potential to physically divide established communities. For example, an elevated grade crossing may create a physical barrier in some locations.

The policies and strategies in the Plan, such as emphasis on complete streets and TDM strategies, would have less of a potential to divide established communities because they are generally expected to occur in established communities. Further, many of these strategies (i.e., bike lanes, pedestrian access) improve connectivity.

Implementation of the Plan would affect land use patterns and the consumption of currently vacant and open space lands. Implementation of the Plan could result in the conversion of greenfield acres and agricultural land to urban uses as the region grows to accommodate 1.6 million additional households (see Section 3.2, *Agriculture and Forestry Resources*, for additional details). As land gets converted from urban or agricultural uses, there is the potential for infrastructure or land developments to divide existing communities. Anticipated significant impacts

include substantial density increases in areas of the region adjacent to transit, or other rights-of-way that could separate residences from community facilities and services, and conversion of vacant lands, including agricultural lands, to transportation infrastructure and residential and commercial development.

Growth under the Plan would not be expected to substantially physically divide any established communities since the majority of projects would generally be infill or redevelopment projects with discrete footprints located within existing urbanized areas. Thus, the likelihood that a project or group of projects in a given area would create conditions that limit mobility and access to necessary goods and services within the community is considered low. Larger or multi-phased projects are typically proposed near the edges of urban centers where adequate vacant land is available for development, or within established campuses or underutilized properties that are already surrounding and constrained by existing urban uses, and thus their construction within these areas would not introduce new, or exacerbate existing, barriers to the availability of goods and services, or the movement of people within established communities in the region.

Transportation projects, including highway and transit extensions and interchange projects, are assumed to have a higher potential to physically divide existing communities since they would involve the creation of new roadways. Highway widening and other projects along established transportation rights-of-way are assumed to have a lower potential to divide existing communities and neighborhoods. However, most transportation projects in the Plan are modifications or expansions (e.g., high-occupancy vehicle lanes, widening) of existing facilities and would have less potential to divide an existing community than new projects.

Nonetheless, because the Plan could result in the location of transportation infrastructure in residential areas and some large-scale development projects could have fenced borders, it is possible that division of communities would occur. As such, impacts are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

SMM-LU-1 SCAG shall continue to coordinate with local County Transportation Commissions, Caltrans, and other local jurisdictions when siting new facilities in residential areas to facilitate minimizing future impacts on established communities through cooperation, information sharing, and regional program development as part of SCAG's ongoing regional planning efforts to promote best planning practices.

PROJECT-LEVEL MITIGATION MEASURES

PMM-LU-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects that physically divide a community, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:

- a) Facilitate connections in communities that have been physically divided through land use projects that build upon and improve existing circulation patterns.
- b) Encourage implementing agencies to orient transportation projects to minimize impacts on existing communities by:
 - Selecting alignments within or adjacent to existing public rights of way.

- Design sections above or below-grade to maintain viable vehicular, cycling, and pedestrian connections between portions of communities where existing connections are disrupted by the transportation project.
 - Wherever feasible incorporate direct crossings, overcrossings, or under crossings at regular intervals for multiple modes of travel (e.g., pedestrians, bicyclists, vehicles).
- c) Where it has been determined that it is infeasible to avoid creating a barrier in an established community, consider other measures to reduce impacts, including but not limited to:
- Alignment shifts to minimize the area affected.
 - Reduction of the proposed right-of-way take to minimize the overall area of impact.
 - Provisions for bicycle, pedestrian, and vehicle access across improved roadways.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to physically dividing an established community, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT LU-2 **Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.**

Significant and Unavoidable Impacts – Mitigation Required

As described in Chapter 2, *Project Description*, by 2050, the SCAG region is anticipated to add nearly 2.1 million people with or without the Plan. To accommodate the growth, the Plan includes a growth vision and forecast regional development pattern. The forecast regional development pattern identified in the Plan represents one potential pattern that is consistent with the Plan (see Map 2-8, Forecasted Regional Development Pattern, in Chapter 2, *Project Description*, of this 2024 PEIR). SCAG does not have land use authority. Lead agencies have the sole discretion to determine whether individual projects are consistent with the Plan.

As described in Chapter 2, *Project Description*, SCAG worked with each local jurisdiction through the Local Data Exchange (LDX) process to identify local land use plans and visions for growth patterns sourced from local jurisdictions and approved projects that each jurisdiction judges to be reasonably foreseeable. SCAG staff developed only one set of regional growth strategies for the Plan's land use pattern that were based on local plans and reflected regional trends and research. As part of the local plans, transportation projects and programs were sourced from the County Transportation Commissions (CTCs) while land use and growth were sourced from local jurisdictions based on local data input, integrating new projects and entitlements at the local level, and discussed

in one-on-one meetings with the majority of local jurisdictions through a 10-month long LDX process (see Chapter 2, *Project Description*, to learn more about the Plan's LDX process). As a result, Connect SoCal 2024 is SCAG's first RTP/SCS to not modify local data inputs. The Plan as implemented by local jurisdictions would distribute growth in the region.

The Plan seeks to integrate the forecasted regional development pattern with the transportation network, in response to projected growth and housing needs, changing demographics, and transportation demands. Transportation policies and strategies included in the Plan emphasize system preservation, active transportation, transportation safety, electrification, and transportation demand management measures. Plan policies and strategies aim to focus new housing and job growth in PDAs and minimizing growth in GRRAs (see Maps 2-9, Priority Development Areas, and 2-10, Green Region Resource Areas, in Chapter 2, *Project Description*, of this 2024 PEIR).

The Plan contains Regional Planning Policies and Implementation Strategies to guide anticipated population, households, and employment growth in the region by 2050. Policies were developed as a result of SCAG's bottom-up planning process outlined in the Plan. This process involved extensive outreach to and input from local jurisdictions, including counties, subregions, and local city planners. In particular, the Regional Planning Policies and Implementation Strategies support the 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 and reduction of urban heat islands and carbon sequestration; encourage the integration of local food production into the regional landscape; promote more resource-efficient development focused on conservation, recycling and reclamation; preserve, enhance and restore wildlife connectivity; reduce the consumption of resource areas, including agricultural lands; and identify ways to improve access to public park space.

As stated previously, the development pattern would be supported by transportation investments that emphasize system preservation and enhancement, active transportation, and land use integration, and are generally consistent with local land use plans, goals, and policies calling for higher density, compact, mixed-use development that may be served by transit, bicycle and pedestrian improvements. The Plan's transportation strategies would have less ability to result in conflicts with general plans as they are expected to be implemented in established communities where such strategies are often included at the local level.

While the Plan was developed primarily from assumptions derived from local general plans and input from local governments and transportation agencies, SB 375 does not require local land use policies, regulations, or general plans to be consistent with the Plan. Also, although the transportation projects and policies and strategies in the Plan are generally compatible with county- and regional-level general plans, local general plans may not have been updated since SCAG's last adopted 2020 RTP/SCS. As such, it is likely that there could be incompatibilities with existing general plans in the region.

As noted above, SCAG has no land use authority to adopt, approve, implement, or otherwise regulate local land use plans or transportation projects identified in the Plan. SB 375 specifically provides that a regional transportation plan does not supersede the land use authority of local jurisdictions. In addition, cities and counties are not required to change their land use plans and policies, including general plans, to be consistent with the Plan. Rather, SB 375 requires the projections of a regional land use pattern integrated with the transportation network and the provision of strategies and recommended policies to reduce per capita GHG emissions from automobiles and light trucks. Local governments reserve their land use authority and may incorporate, as appropriate, the recommended policies and strategies included in the Plan.

It is possible that some general plans do not include similar policies to those in the Plan because (1) some general plans have not been recently updated (in particular some jurisdictions have not yet updated their general plans to incorporate RHNA requirements), and (2) each jurisdiction is focused on land uses within their authority. As a result, there exists the potential for a local general plan to conflict with SCAG's projected land use pattern. While this conflict would not result in a direct physical impact, physical impacts could occur indirectly as other pressures for increased densities grow in the region. As density increases, consistent with the Plan, these policies and strategies could facilitate higher density in areas not currently planned for such densities (at the local level). As such, there is the potential for inconsistencies between the Plan policies and strategies and local planning documents that could potentially lead to physical environmental impacts.

Conversely, implementation of the Plan and resulting development patterns could result in growth in infill locations within areas with existing infrastructure thereby discouraging re-investment in areas that are less well served by infrastructure – in particular transportation infrastructure. Such areas may include communities located outside of urban centers or rural towns. The lack of investment could lead to a decrease in population, social, and economic activity that could eventually translate into urban decay in underutilized portions of affected communities. The resulting lack of maintenance and investment in areas could create or accelerate physical deterioration of existing land uses in smaller communities throughout the region. If such change, including economic forces, were large enough, the result could be extensive physical deterioration often referred to as urban decay or blight. While not likely, implementation of the Plan could create or accelerate physical deterioration resulting in urban decay in underutilized portions of affected communities.

Implementation of the Plan would also have the potential to result in conflicts with the provisions of applicable adopted HCPs, NCCPs as well as other open space/parklands. Plan policies and strategies seek to reduce conflicts with applicable HCPs, NCCPs and open spaces by focusing new growth in PDAs. However, because some planned transportation projects could occur in or adjacent to lands protected under these plans, there is the potential for a significant impact (see Section 3.4, *Biological Resources*, Impact BIO-6, for further analysis of the Plan's potential to conflict with provisions of an adopted HCP or NCCP).

As previously discussed, there are areas subject to general plans that would be impacted by transportation projects. In addition, since the Plan's planning horizon year is beyond the timeline of many of the most recent general plans, implementation of the Plan's policies and strategies could result in changes to land use patterns as compared to those currently identified in certain general plans. Therefore, there is potential for inconsistencies with general plans as well as regional conservation plans, and as such, impacts would be considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

SMM-LU-2 SCAG shall continue to use the Intergovernmental Review (IGR) Program as an information sharing tool by providing information to regionally significant projects as defined in CEQA Guidelines Section 15206 to facilitate consideration of the most currently adopted Connect SoCal 2024. SCAG shall continue to review regionally significant projects submitted to SCAG to include them in the IGR Bi-Monthly Reports that are published on SCAG's IGR Program website at: <https://scag.ca.gov/igr-bi-monthly-report>. For more information on SCAG's IGR Program, please visit: <http://www.scag.ca.gov/programs/Pages/IGR.aspx>.

SMM-LU-3 SCAG shall continue to support local jurisdictions when they update their general plans at least every ten years, as recommended by the Governor’s Office of Planning and Research through the use of the multiple planning and analytical tools provided by SCAG such as the Regional Data Platform and other GIS software. Additionally, SCAG shall continue to facilitate information sharing, such as through the Toolbox Tuesday program to provide webinars on technical information and tools that may be useful for local jurisdictions to assist with their general plan updates, and funding programs, such as Regional Early Action Planning grants and Call for Projects.

PROJECT-LEVEL MITIGATION MEASURES

PMM-LU-2 In accordance with provisions of CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B), a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects that are due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, as applicable and feasible. When an inconsistency with the adopted general plan policy or land use regulation (adopted for the purpose of avoiding or mitigating an impact) is identified, measures may include the following or other comparable measures identified by the lead agency:

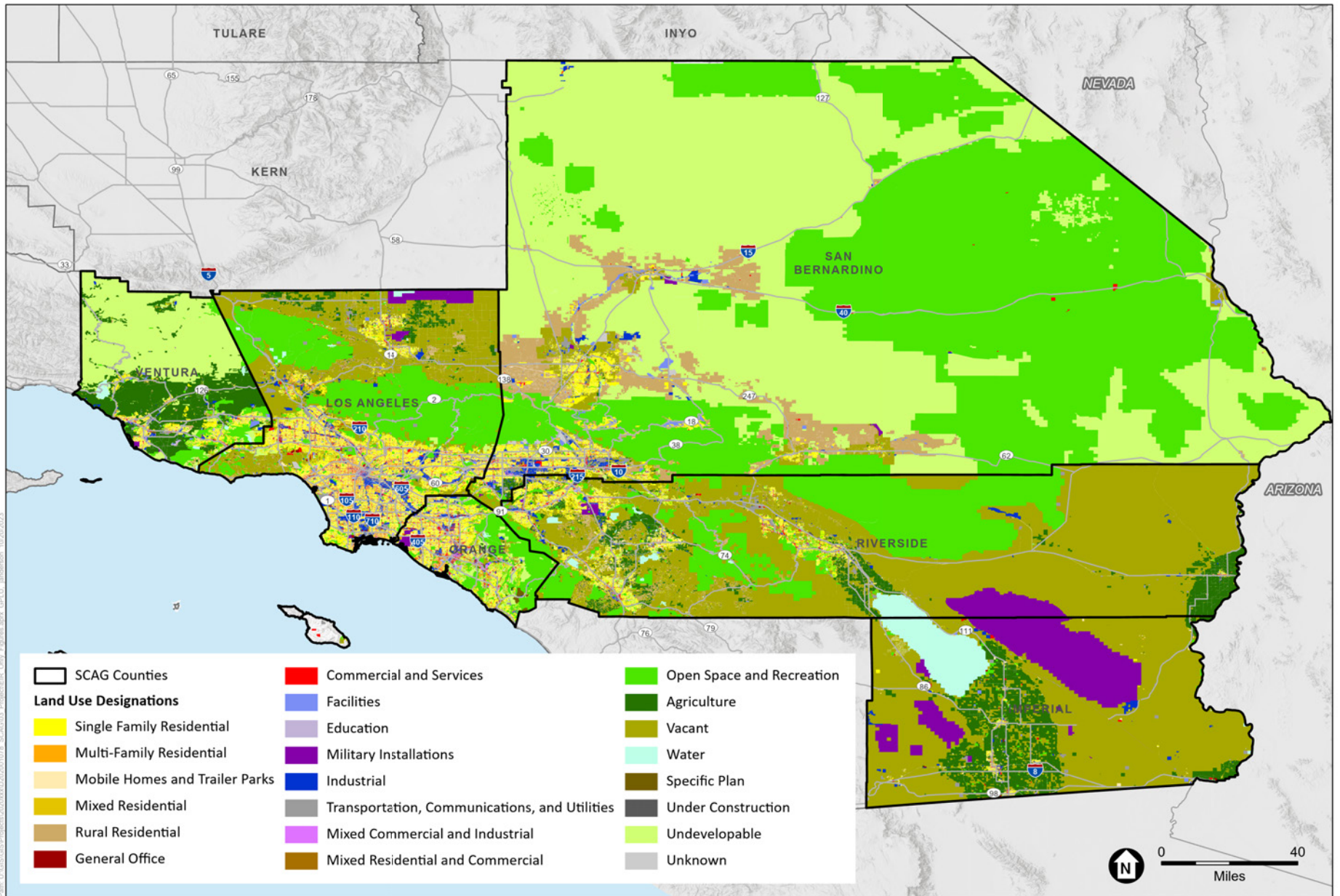
- a) Modify the transportation or land use project to eliminate or reduce the conflict; or, determine if the environmental, social, economic, and engineering benefits of the project warrant an amendment to the general plan or land use regulation and process said amendment.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan’s Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to potential lack of consistency with land use plans, policies, and regulations, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG’s lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprising a regional growth forecast and land use pattern, policies and strategies, and individual transportation projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan in and of itself would result in significant adverse environmental impacts with respect to land use, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan’s impacts would similarly reduce the Plan’s contribution to cumulative impacts.



SOURCE: SCAG, 2016

Connect SoCal 2024 PEIR

Map 3.11-1
General Plan Land Use Designations



3.11.4 SOURCES

- Bureau of Indian Affairs. 2023. Branch of Agriculture and Rangeland Development. <https://www.bia.gov/bia/ots/dnr/bard>. Accessed March 23, 2023.
- Bureau of Land Management (BLM). 1980. *California Desert Conservation Area Plan*. As Amended. https://eplanning.blm.gov/public_projects/lup/66949/82080/96344/CDCA_Plan.pdf.
- BLM. 2006. *Record of Decision West Mojave Plan: Amendment to the California Desert Conservation Area Plan*. March 2006. https://eplanning.blm.gov/public_projects/lup/72544/97511/117667/wemo_rod_3-06.pdf.
- BLM. 2021. Desert Renewable Energy Conservation Plan Frequently Asked Questions. <https://www.blm.gov/sites/blm.gov/files/programs-planning-and-nepa-california-drecp-faqs.pdf>. Accessed March 23, 2023.
- California Coastal Commission (CCC). 2019. Local Coastal Program Areas. <https://www.coastal.ca.gov/maps/lcp/>. Accessed March 23, 2023.
- California Department of Finance (California DOF). 2021. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011–2020 with 2010 Census Benchmark. May 2021. <https://dof.ca.gov/forecasting/demographics/estimates/estimates-e5-2010-2020/>. Accessed May 11, 2023.
- California Department of Conservation (DOC). 2023. Farmland Mapping and Monitoring Program. <https://www.conservation.ca.gov/dlrp/fmmp/>. Accessed March 2, 2023.
- California Department of Fish and Wildlife (CDFW). 2023. Regional Conservation Investment Strategies Program. <https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation>. Accessed March 23, 2023.
- California Energy Commission (CEC). 2015. *Desert Renewable Energy Conservation Plan Proposed Land Use Plan Amendment and Environmental Impact Statement*. October 2015. <https://eplanning.blm.gov/eplanning-ui/project/66459/570>. Accessed March 23, 2023.
- California Public Resources Code. Division 20, Section 3000–30013. California Coastal Act.
- Coachella Valley Conservation Commission. 2023. *Coachella Valley Multiple Species Habitat Conservation Plan*. <https://cvmshcp.org/>. Accessed March 23, 2023.
- County of Los Angeles. 2022. Incorporated Areas – Cities. <https://auditor.lacounty.gov/incorporated-areas-cities/>. Accessed March 17, 2023.
- County of Los Angeles Department of Regional Planning. 2023. Unincorporated Los Angeles County. Last updated November 28, 2018. <https://planning.lacounty.gov/unincorporated-los-angeles-county/>. Accessed May 12, 2023.
- County of Los Angeles Department of Regional Planning. 2022. *Los Angeles County General Plan*. Land Use Element. Updated July 14, 2022.
- County of Riverside. 2021. *County of Riverside General Plan*. Chapter 3: Land Use Element. p. LU-2. https://planning.rctlma.org/Portals/14/genplan/2020/elements/Ch03_Land%20Use_080420.pdf.
- County of San Bernardino. 2020. *Countywide Plan, County Policy Plan*. Land Use Element. p. 1. <https://www.sbcounty.gov/Uploads/LUS/GeneralPlan/Policy%20Plan%20and%20Policy%20Maps.pdf>.
- Governor’s Military Council. 2023. California Military Installations and Operational Areas. <https://militarycouncil.ca.gov/s-californiamilitarybases/>. Accessed March 23, 2023.
- Imperial County. 2015. *Imperial County General Plan*. Land Use Element. October.

- Lower Colorado River Multi-Species Conservation Program. 2022. About Us. https://www.lcrmscp.gov/about_us. Last updated June 17, 2022. Accessed March 23, 2023.
- Orange County. 2005. *Orange County General Plan*. Ch. II Background for Planning (Demographics). <https://ocds.ocpublicworks.com/sites/ocpwoocds/files/import/data/files/8585.pdf>.
- Orange County. 2022. *Orange County General Plan*. 2023. <https://ocds.ocpublicworks.com/service-areas/oc-development-services/planning-development/codes-and-regulations/general-plan>. Accessed July 18, 2023.
- Regional Conservation Authority. 2003. *Western Riverside County Multiple Species Habitat Conservation Plan*. <https://www.wrc-rca.org/habitat-conservation/>. Accessed March 23, 2023.
- Sofian, Sibarani & Li, Xin & Kusumawardhani, Putri & Widiyani, Wenes. 2015. Sustainable Systems Integration Model-Metrics in Design Process. https://www.researchgate.net/publication/277478162_Sustainable_Systems_Integration_Model-Metrics_in_Design_Process. Accessed March 23, 2023.
- Southern California Association of Governments (SCAG). 2016. *2016 Regional Transportation Plan/Sustainable Communities Strategy FEIR*. November. https://scag.ca.gov/sites/main/files/file-attachments/2016dpeir_complete.pdf?1624320652. Accessed March 23, 2023.
- SCAG. 2021. 2021 Local Profiles Dataset. https://scag.ca.gov/sites/main/files/file-attachments/2021_local_profiles_dataset.xlsx?1661892901. Accessed August 24, 2023.
- SCAG. 2022. *Federal Recognized Indian Reservation - SCAG Region*. <https://hub.scag.ca.gov/datasets/375d8f97b8b14fed92ce012bb43a89dc/explore?location=33.639766%2C-117.316274%2C7.76>. Accessed March 23, 2023.
- SCAG. 2023a. Connect SoCal 2024 Demographics & Growth Forecast. Draft Technical Report. November 2, 2023.
- SCAG. 2023b. Land Use and Communities Technical Report. Draft Technical Report.
- SCAG. 2023c. Connect SoCal 2024 Scenario Planning Model (SPM).
- SCAG. 2023d. Regional Housing Needs Assessment. <https://scag.ca.gov/rhna>. Accessed March 23, 2023.
- SCAG. 2023e. Connect SoCal 2024 Transportation Modeling Data.
- U.S. Army Corps of Engineers (USACE). 2022. Waterborne tonnage for principal U.S. ports and all 50 states and U.S. territories; Waterborne tonnages for domestic, foreign, imports, exports, and intra-state waterborne traffic. <https://usace.contentdm.oclc.org/digital/collection/p16021coll2/id/7447>. Accessed March 23, 2023.
- U.S. Bureau of Reclamation. 2007. *5.0 Indian Trust Assets and Tribal Lands*. https://www.usbr.gov/mp/cao/newmelones/docs/5.0-Indian_Trust_Assets.pdf.
- U.S. Census Bureau. 2002. *2000 Census of Population and Housing*. <https://www2.census.gov/library/publications/2002/dec/phc-1-6.pdf>.
- U.S. Fish and Wildlife Service (USFWS). 1996. Habitat Conservation Plan Documents – Orange County Central-Coastal HCP/NCCP. <https://oconserver.org/wp-content/uploads/2015/04/NCCP-Parts-I-II-Plan.pdf>.
- USFWS. 2007. Habitat Conservation Plan Documents – Orange County Southern Subregion HCP. <https://www.fws.gov/sites/default/files/documents/FAQ%20Orange%20County%20Southern%20Subregion%20HCPsjw%20web.pdf>.

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3.12 MINERAL RESOURCES

This section of the 2024 PEIR describes mineral resources in the SCAG region, sets forth the regulatory framework that addresses mineral resources, and analyzes the potential impacts of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures, as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental reviews to reduce identified impacts as appropriate and feasible.

3.12.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for mineral resources follow:

- *Mineral resource*: A mineral resource is a concentration of natural inorganic materials or fossilized organic material occurring in such form, quantity, or quality that there are reasonable prospects for economic extraction. For the purposes of this section, the term “mineral resources” refers to both non-fuel materials and petroleum resources.
- *Inorganic mineral resources*: Inorganic mineral resources include non-fuel materials such as aggregate (e.g., sand and gravel), metals (e.g., gold, silver, iron), and industrial minerals (e.g., clays, limestone, and gypsum).
- *Petroleum resources*: Petroleum resources include crude oil and natural gas.

NON-FUEL MINERAL RESOURCES

California relies on non-fuel mineral resources as a continuous supply of construction aggregate materials (sand, gravel, and crushed stone) for urban infrastructure and essential to the economy of Southern California. Construction minerals, such as aggregate, constitute the state’s most important mineral commodity in terms of tonnage, value, and societal infrastructure. California is number one in the United States for the production of sand and gravel, and fourth in the United States for total non-fuel mineral production. As of 2020, there were 653 active non-fuel mines in the state with a total market value of production valuing \$4.6 billion (CGS 2023).

Mineral Resource Zones (MRZ) were initially mapped in 1980 as a result of the Surface Mining and Reclamation Act of 1975 (SMARA) (CDMG 1999). MRZs are designated into four classes that indicate the potential for a specific area to contain significant mineral resources:

- **MRZ-1**: Areas where available geological information indicated there is little or no likelihood for presence of significant mineral resources.
- **MRZ-2**: Areas underlain by mineral deposits where geological data indicate that significant measured or indicated resources are present or where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists.
- **MRZ-3**: Areas containing known mineral occurrences of undetermined mineral resources significance.
- **MRZ-4**: Areas of known mineral occurrences where geological information does not rule out the presence or absence of significant mineral resources.

NON-FUEL MINERAL RESOURCES CLASSIFICATION PROJECT

To organize active and historic mining data as mandated by the SMARA, the California Department of Conservation created the Mineral Resources Project, to provide information about California's non-fuel mineral resources (SMGB 2018). Under the project, the California Geological Survey (CGS) classifies lands that contain regionally significant non-fuel mineral resources and then develops objective maps and reports to be used by mining companies and consultants, government agencies, and the public to recognize, utilize, and protect California's mineral resources.

The Mineral Resources Project divides non-fuel mineral resources into three categories: metals (include gold, silver, iron, and copper), industrial minerals (like clays, limestone, and gypsum), and construction aggregate (sand, gravel, and crushed stone) (CGS 2023).

MINERAL RESOURCES OF REGIONAL SIGNIFICANCE

County and city general plans are required to identify significant mineral resource areas and apply appropriate land use designations to ensure their future availability. Many city and county general plans in the SCAG region reference and map local mineral resources. Most of the comprehensive mineral resource mapping in California has been completed for urban areas where there is a high probability that converted land uses would be incompatible with mining. Gold, sand, and gravel are the primary mineral resources still extracted throughout the SCAG region. **Map 3.12-1, Mineral Resource Zones in the SCAG Region**, illustrates the location of MRZs in the SCAG region.

IMPERIAL COUNTY

A number of mineral resources in Imperial County are currently being extracted (Imperial County 2016). These mineral resources include gold, gypsum, sand, gravel, lime, clay, stone, kyanite, limestone, sericite, mica, tuff, salt, potash, and manganese. Several issues influence the extraction of mineral deposits in Imperial County, including the location of geologic deposition, the potential for impacts to the environment, and land use conflicts. As a result, the extraction of mineral resources is limited to a relatively small number of sites throughout the County. There are no MRZs in Imperial County. The 2020 state production report identified one gypsum mine along the western border with San Diego County, one gold and silver in the southern portion of the county, and explorations for lithium along the Salton Sea and gold at the Southern Empire and Kore Imperial Mines in the southern portion of the county (CGS 2023).

LOS ANGELES COUNTY

In Los Angeles County, four MRZ-2s are identified in, or partially within the unincorporated areas; Little Rock Creek Fan, Soledad Production Area, Sun Valley Production Area, and Irwindale Production Area (Los Angeles County 2022). The Soledad and Little Rock Creek MRZ-2s contain significant commercially viable aggregate or mineral deposits, such as sand, gravel, and other construction aggregate that are estimated to contain mineral resources through the year 2046. The Soledad and Little Rock Creek MRZ-2s contain significant deposits that are estimated to provide for future needs through the year 2046. The Sun Valley MRZ-2 is near depletion and the Irwindale MRZ-2 is expected to approach depletion in 2017. The 2020 state production report identified two clay mines in the central and west portions of the county (CGS 2023).

ORANGE COUNTY

In 1994, the California Department of Conservation, Division of Mines and Geology, published an updated report identifying significant sand and gravel resources for the Orange County region (Orange County Public Works. 2020). These resource areas are located in portions of the Santa Ana River, Santiago Creek, San Juan Creek, Arroyo Trabuco, and other areas. The 2020 state production report identified one specialty sand mine in the southern portion of the county (CGS 2023).

RIVERSIDE COUNTY

Mineral extraction is an important component of Riverside County's economy (Riverside County 2015). The county has extensive deposits of clay, limestone, iron, sand, and aggregates. Mineral deposits in the county are important to many industries, including construction, transportation, and chemical processing. The value of mineral deposits within the county is enhanced by their close proximity to urban areas. However, increasing urbanization also encroaches on the mineral resources within the county. The 2020 state production report identified one gypsum mine in the eastern portion of the county, two clay mines along the western border with Orange County, and one iron ore mine in the central portion of the county (CGS 2023).

SAN BERNARDINO COUNTY

In San Bernardino County, four regions are designated as MRZ-2 or MRZ-3: Valley Region, Mountain Region, North Desert Region, and East Desert Region (San Bernardino County 2019). Mineral resources include aggregate, cement, rare earths clay, gold, and evaporite salts. The 2020 state production report identified one gypsum mine in the northeast corner of the county, seven limestone and three clay mines mostly in the southwest portion of the county, two saline compounds mines in the northwest and south central portions of the county, one salt mine in the south central portion of the county, one talc mine in the northwest portion of the county, four iron ore mines in the northeast portion of the county, one gold mine in the eastern portion of the county, and explorations for silver at the Apollo Calico Mine in the central portion of the county (CGS 2023).

VENTURA COUNTY

The two principal mineral resources located in Ventura County are petroleum (oil and gas) and aggregate (principally sand and gravel) (Ventura County Resource Management Agency 2020). Other minerals of commercial value within Ventura County are asphalt, clay, expansible clay, gypsum, limestone, and phosphate. Although many sand and gravel sites exist throughout the County, most of the extraction sites are located in and along the Santa Clara Riverbed. The Oak Ridge Hills extend westward from the Los Angeles County line from Simi Valley to the area between the cities of Moorpark and Fillmore; several areas along this trend have been designated as MRZ-2 lands by the SMGB. The 2020 state production report identified one clay mine in the northern portion of the county, one clay mine and specialty sand mine along the eastern border with Los Angeles County, and one gypsum mine in the northwest corner of the county (CGS 2023).

CONSTRUCTION AGGREGATE IN THE SCAG REGION

Mapping information assists planners and decision-makers balance the need for construction aggregate with many other competing land use issues in their jurisdictions. It is estimated that in the next 50 years, California will need approximately 11 billion tons of aggregate, while current permits only allow for 7.6 billion tons, or 69 percent of the total need (CGS 2018).

Table 3.12-1, Permitted Aggregate Resources and 50-Year Demand in the SCAG Region, shows the forecasted demand as well as the permitted aggregate reserves within the SCAG region. The Temescal Valley-Orange County area has the highest projected demand over the next 50 years, with an estimated 1,079 million tons demanded. In contrast, Ventura County has a future demand of approximately 241 million tons of aggregate. All of the aggregate study areas within the SCAG region have less permitted aggregate reserves than they are projected to need for the next 50 years. The projected total 50-year demand for the SCAG region is 4.4 billion tons (it should be noted that although there are aggregate mines in Imperial County, the CGS does not provide permit and demand data for Imperial County).

TABLE 3.12-1 Permitted Aggregate Resources and 50-Year Demand in the SCAG Region

	COUNTY*	50-YEAR DEMAND (MILLION TONS)	PERMITTED AGGREGATE RESERVES (MILLION TONS)	PERMITTED AGGREGATE RESERVES COMPARED TO 50-YEAR DEMAND (PERCENT)	PROJECTED YEARS REMAINING
Claremont-Upland P-C Region	San Bernardino	202	90	45	21 to 30
Palmdale P-C Region	Los Angeles	569	163	29	11 to 20
Palm Springs P-C Region	Riverside	238	163	68	31 to 40
San Bernardino P-C Region	San Bernardino	939	156	17	11 to 20
San Fernando Valley/Saugus-Newhall	Los Angeles	387	17	4	10 or fewer
San Gabriel Valley P-C Region	Los Angeles	751	297	40	21 to 30
Temescal Valley-Orange County	Orange	1,079	862	80	41 to 50
Ventura County	Ventura	241	84	35	11 to 20
Total SCAG Region		4,406	1,832	N/A	N/A

Source: CGS 2018

Table Note: Aggregate reserves not analyzed for Imperial County

Current non-permitted aggregate resources are the most likely future sources of construction aggregate potentially available to meet California’s continuing demand. Non-permitted aggregate resources are deposits that may meet specifications for construction aggregate, are recoverable with existing technology, have no land overlying them that is incompatible with mining, and currently are not permitted for mining. These resource areas include areas that are known to contain aggregate resources and have compatible land uses such as agricultural land, open space lands (not designated as parks), and forest lands. Uses that are considered incompatible with mining include urban areas, county and state parks, national parks, and golf courses. It is unlikely that all these resources would ever be mined as many are located in proximity to urban or environmentally sensitive areas or remote from a potential market to be economically viable. Land uses that are considered incompatible with mining include urban areas, county and state parks, national parks, and golf courses.

The estimated amount of non-permitted resources in the region is not easily quantifiable; California’s non-permitted aggregate resources have been estimated to be approximately 74 billion tons (CGS 2018). While the estimated amount of nonpermitted resources is large, it is unlikely that all these resources would ever be mined because of social, environmental, or economic factors. For example, aggregate resources located in proximity to urban or environmentally sensitive areas can limit or stop the development of mining operations, as such these sites are unlikely to be mined. These resources may also be located remote from a potential market to be

economically viable, due to the cost of transporting such resources. In spite of such possible constraints, current nonpermitted aggregate resources are the most likely future sources of construction aggregate potentially available to meet California's continuing demand.

PETROLEUM RESOURCES OF REGIONAL SIGNIFICANCE

The oil, natural gas, and geothermal industries are regulated by the California Geologic Energy Management Division (CalGEM), which regulates the permitting, drilling, operation, maintenance, and permanent closure of energy resource wells (CalGEM 2022). CalGEM has jurisdiction over more than 242,000 wells, including nearly 101,300 defined as active or idle oil producers (CalGEM 2023a). CalGEM's authority extends from onshore to three miles offshore. As shown in **Map 3.12-2, Oil and Natural Gas Resources in the SCAG Region**, there are several oil and natural gas fields with numerous wells across all the SCAG counties (CalGEM 2023b).

3.12.2 REGULATORY FRAMEWORK

FEDERAL

OCCUPATIONAL SAFETY AND HEALTH ACT

The Occupational Safety and Health Act was passed to address employee safety in the workplace. The act created the Occupational Safety and Health Administration (OSHA), whose mission is to ensure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. The OSHA staff establishes and enforces protective standards and reaches out to employers and employees through technical assistance and consultation programs. Some OSHA regulations contain standards related to hazardous materials handling, including workplace conditions, employee protections requirements, first aid, and fire protection. The regulations in 29 CFR et seq. include the following:

- Part 1910.38 requires facilities to have an emergency action plan to ensure the safe response to emergencies.
- Part 1910.119 contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals, which may result in toxic, fire, or explosion hazards.
- Part 1910.1200 ensures that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to employers and employees. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, safety data sheets, and employee training.

INDIAN MINERAL DEVELOPMENT ACT

The Indian Mineral Development Act of 1982 (25 U.S. Code [USC] 2101–2108) permits Indian tribes, through the Secretary of the Interior, to enter into a Minerals Agreement for the disposition of tribal mineral resources. A Minerals Agreement provides for the exploration for or extraction of oil, gas, uranium, coal, geothermal, or other energy or non-energy mineral resources for tribes that own a beneficial or restricted interest or provide for the sale or production of tribal mineral resources.

STATE

SURFACE MINING AND RECLAMATION ACT

The SMARA (Public Resources Code Sections 2710–2796) requires that the State Department of Mines and Geology Board map areas throughout the state that contain regionally significant mineral resources. Construction aggregate resources (sand and gravel) deposits were the first commodity selected for classification by the Board. Once mapped, the Mines and Geology Board is required to designate for future use those areas that contain aggregate deposits that are of prime importance in meeting the region’s future need for construction-quality aggregates. The primary objective of SMARA is for each jurisdiction to develop policies that would conserve important mineral resources, where feasible, that might otherwise be unavailable when needed. SMARA requires that once policies are adopted, local agency land use decisions must be in accordance with its mineral resource management policies. These decisions must also balance the mineral value of the resource to the market region as a whole, not just their importance to the local jurisdiction.

CALIFORNIA GEOLOGIC ENERGY MANAGEMENT DIVISION

All California oil and natural gas wells (development and prospect wells), enhanced-recovery wells, water-disposal wells, service wells (i.e., structure, observation, temperature observation wells), core-holes, and gas-storage wells, onshore and offshore (within 3 nautical miles of the coastline), located on State and private lands, are permitted, drilled, operated, maintained, plugged, and abandoned under requirements and procedures administered by CalGEM. Regulations pertaining to oil and natural gas production are summarized in the CalGEM Publication SR-1, *Statutes and Regulations*, dated January 2022. Regulations for the installation and abandonment of oil and natural gas wells are also in 14 CCR 1712 through 1724.10. Environmental protection regulations for oil and natural gas well installations, operations, and abandonments are in 14 CCR 1750 through 1789. CalGEM requires written approval prior to changing the condition of any well (e.g., making an idle well active, or plugging and abandoning a well). For new wells or alteration of existing wells, approval depends on protection of subsurface hydrocarbons and fresh waters; protection of the environment; utilization of adequate BOPE; and utilizing approved drilling and cementing techniques.

CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ACT

The California Occupational Safety and Health Act of 1973, codified in California Labor Code, Sections 6300 et seq., addresses California employee working conditions, enables the enforcement of workplace standards, and provides for advancements in the field of occupational health and safety. The act also created the California Occupational Safety and Health Administration (Cal OSHA), the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal OSHA’s standards are generally more stringent than federal regulations. Under Cal OSHA standards, the employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

GOVERNMENT CODE SECTION 65302(D)

Government Code Section 65302(d) states that a conservation element of the general plan shall address minerals and other natural resources.

LOCAL

COUNTY AND CITY GENERAL PLANS AND ORDINANCES

The SCAG region spans six counties and 191 cities, some of which have general plans and ordinances containing regulations and policies related to mineral resources and oil and natural gas wells. For the most part, local planning guidelines have been developed in county and city general plans to identify and encourage the utilization and conservation of mineral and energy resources, encourage sustainable management of resources, prevent, or minimize adverse effects to the environment, and protect public health and safety. Pursuant to Government Code Section 65302, a general plan must include “A conservation element for the conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, *minerals*, and other natural resources” (emphasis added).

As noted above, mineral extraction in proximity to sensitive uses is extremely controversial. For example, oil extraction has been allowed within the City of Los Angeles for many years with wells located in open spaces as well as within dense urban areas. The City of Los Angeles in January 2023 banned all oil extraction within the City citing to known health hazards and the City’s policies regarding climate change. The City of Los Angeles Oil and Gas Drilling Ordinance No. CF 17-0447 immediately banned all new oil and gas extraction and requires the removal of existing operations after an amortization period. Note that in August 2023, the California Supreme Court struck down a similar ordinance in Monterey County banning oil and gas drilling because such ordinances are preempted by state law. In other words, CalGEM and the laws and policies it enforces is the appropriate regulatory agency, not county or city agencies.

3.12.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to mineral resources if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan’s vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis of mineral resources considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

Impacts to mineral resources (i.e., non-fuel mineral and petroleum resources) were evaluated in accordance with 2023 CEQA Guidelines Appendix G. The methodology for determining the significance of impacts to mineral resources compares the existing conditions as of 2022 to future conditions under Connect SoCal 2024, as required by CEQA Guidelines Section 15126.2(a). The known mineral resources located within the SCAG region were evaluated using the published state and county reports and the CEQA Guidelines, consistent with CEQA Guidelines Section 15064. All of the counties within the SCAG region have been documented to have mineral resources. The development of new transportation facilities may affect mineral resources, primarily through development limiting access to mineral resources. Mineral resources within the SCAG region were evaluated at a programmatic level of detail, in relation to the General Plans of the six counties and the 191 cities within the SCAG region; and a review of related literature germane to the SCAG region.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

Impacts relative to the availability and consumption of non-fuel mineral resources are analyzed below. This analysis also includes impacts to the availability of petroleum resources (i.e., the potential for projects implemented as a result of the Plan to be placed in areas that would limit access to petroleum resources). The consumption of petroleum resources for projects implemented as a result of the Plan is analyzed in Section 3.6, *Energy*.

IMPACTS AND MITIGATION MEASURES

IMPACT MIN-1 **Potential to result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.**

Significant and Unavoidable Impact – Mitigation Required

NON-FUEL MINERAL RESOURCES

Projects implemented as a result of the Plan would require substantial amounts of aggregate resources for construction purposes, constituting a significant impact. The six-county and 191-city SCAG region has approximately 1,832 million tons of permitted aggregate reserves (Table 3.12-1). The CGS estimates that the SCAG region would need approximately 4,406 million tons of aggregate over the next 50 years (2017 through 2067). The difference of 2,574 million tons would need to be permitted over the next 50 years to meet the projected demand. Table 3.12-1 indicates that, of the eight areas of permitted aggregate resources, one is projected to have less than 10 years remaining (San Fernando Valley/Saugus-Newhall) and three have 11 to 20 years left (Palmdale P-C Region, San Bernardino P-C Region, and Ventura County). The SCAG region's construction industry is greatly dependent on readily available aggregate deposits that are within a reasonable distance to market regions. Aggregate is a low-unit-value, high-bulk-weight commodity or material required for construction of most transportation projects and development projects that must be obtained from nearby sources in order to minimize

costs to the consumer. If nearby sources do not exist, then transportation costs quickly could exceed the value of the aggregate.

Table 3.12-1 shows that just under 42 percent of the projected 50-year demand is currently permitted in the SCAG region (excluding mines in Imperial County). The Plan includes transportation system improvements, such as new or expanded highway/arterials, high-occupancy vehicle (HOV) lanes and connectors, new light and heavy rail, goods movement projects, and infrastructure that would require substantial amounts of aggregate resources. In addition, the Plan would influence population distribution by focusing growth in PDAs. Development projects encouraged by Plan policies and strategies would also result in a demand for aggregate resources for construction.

As a programmatic, long-range planning document, the Plan does not include specific construction information related to transportation projects or potential land use development. However, projects constructed as a result of the Plan could require substantial amounts of aggregate resources for construction. Therefore, impacts could be significant, requiring the consideration of mitigation measures.

PETROLEUM RESOURCES

Projects implemented as a result of the Plan could occur in areas that are underlain by petroleum resources. Such development could restrict or prevent access to petroleum resources.

The majority of projects implemented under the Plan would focus around existing development and transportation corridors. The addition of wells and piping for the extraction of crude oil and/or natural gas in existing developed areas would be incompatible with the existing land use zoning and general plan policies for developed areas. In addition, economically viable petroleum reservoirs extend over large areas and would not necessarily require wells in developed areas to extract those resources. However, given the uncertainties regarding the specific nature and location of future transportation and land use projects relative to available petroleum resources, it is reasonably foreseeable that some projects implemented as a result of the Plan could result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Thus the impact could be significant, requiring the consideration of mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GEN-1.

PROJECT-LEVEL MITIGATION MEASURES

- PMM-MIN-1** In accordance with provisions of CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B), a Lead Agency for a project can and should consider mitigation measures to reduce the use of mineral resources that could be of value to the region, as applicable and feasible. Such measures may include the following or other comparable measures identified by the Lead Agency:
- a) Provide for the efficient use of known aggregate and mineral resources or locally important mineral resource recovery sites, by ensuring that the consumptive use of aggregate resources is minimized and that access to recoverable sources of aggregate is not precluded, as a result of construction, operation and maintenance of projects.

- b) Where avoidance is infeasible, minimize impacts to the efficient and effective use of recoverable sources of aggregate through measures that have been identified in county and city general plans, or other comparable measures such as:
 - 1) Recycle and reuse building materials resulting from demolition, particularly aggregate resources, to the maximum extent practicable.
 - 2) Identify and use building materials, particularly aggregate materials, resulting from demolition at other construction sites in the SCAG region, or within a reasonable hauling distance of the project site.
 - 3) Design transportation network improvements in a manner (such as buffer zones or the use of screening) that does not preclude adjacent or nearby extraction of known mineral and aggregate resources following completion of the improvement and during long-term operations.
 - 4) Avoid or reduce impacts on known aggregate and mineral resources and mineral resource recovery sites through the evaluation and selection of project sites and design features (e.g., buffers) that minimize impacts on land suitable for aggregate and mineral resource extraction by maintaining portions of MRZ-2 areas in open space or other general plan land use categories and zoning that allow for mining of mineral resources.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to the loss of availability of a known mineral resource, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT MIN-2 **Potential to result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.**

Significant and Unavoidable Impact – Mitigation Required

NON-FUEL MINERAL RESOURCES

Projects implemented as a result of the Plan have the potential to impact availability of mineral resources if they are constructed in MRZs. Improvements and modifications to existing rights-of-way, such as HOV lanes, high-occupancy toll (HOT) lanes, new bus-ways and capacity enhancement facilities, mixed flow lanes, and right-of-way maintenance would have less potential to impact mineral resources because these transportation projects improve facilities that already exist and are already impeding access to resources. Construction of new transportation

projects, like new freeways, and even additional lanes, have the potential to impact availability of aggregate and mineral resources.

As noted in Section 3.12.1, *Environmental Setting*, each county within the SCAG region contains mineral resources of local importance as noted in their respective general plans. These mineral resources generally include aggregate resources that are used in construction activities throughout the region. Projects implemented as a result of the Plan have the potential to reduce the availability of these resources, either directly by locating projects within MRZs or indirectly through the use of aggregate and mineral resources in project development that may result in depletion of aggregate supply. Therefore, impacts could be significant, requiring the consideration of mitigation measures.

PETROLEUM RESOURCES

Projects implemented as a result of the Plan could occur in areas that are underlain by petroleum resources. Such development could restrict or prevent access to petroleum resources.

Projects implemented as a result of the Plan would be focused around existing development and transportation corridors. The addition of wells and piping for the extraction of crude oil and/or natural gas in existing developed areas would be incompatible with the existing land use zoning and general plan policies for developed areas. In addition, economically viable petroleum reservoirs extend over large areas and would not require wells in developed areas to extract those resources. However, given the uncertainties regarding the specific nature and location of future transportation and land use projects relative to available petroleum resources, it is reasonably foreseeable that projects implemented as a result of the Plan could result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. Thus, the impact could be significant, requiring the consideration of mitigation measures.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-GEN-1.

PROJECT-LEVEL MITIGATION MEASURE

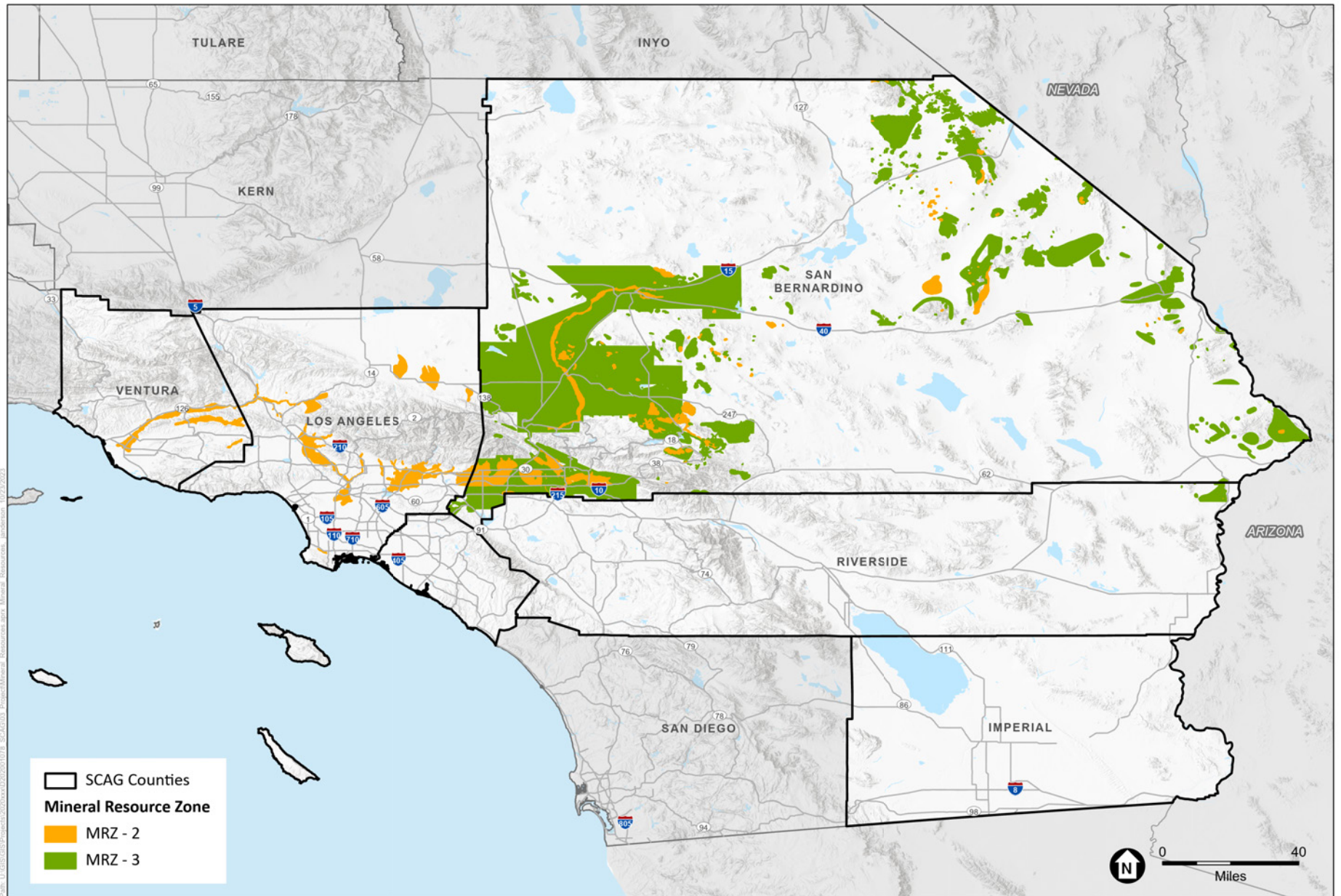
See PMM-MIN-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to the loss of availability of a locally important mineral resource recovery sites, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to mineral resources, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

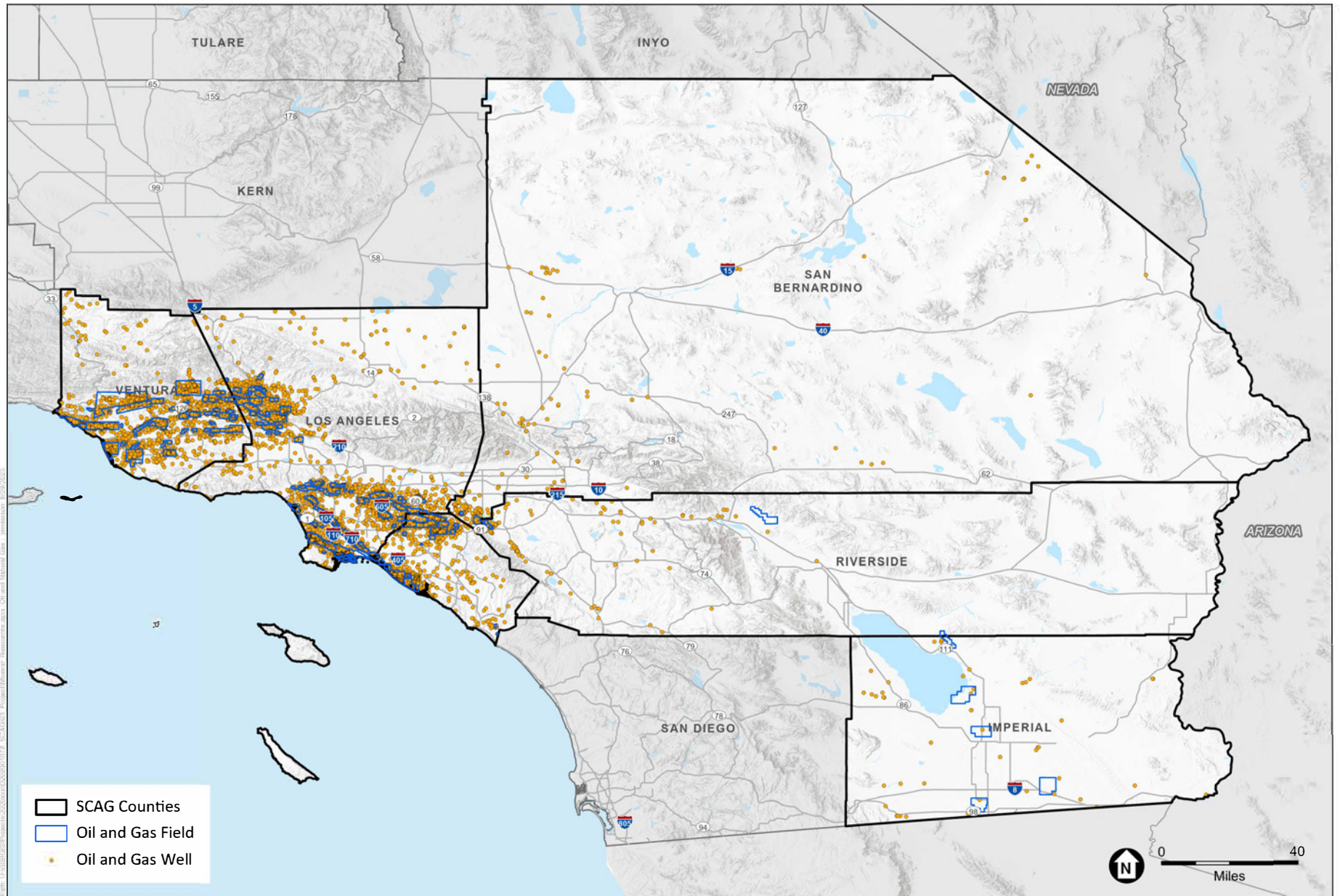


SOURCE: ESA, 2022; Ventura County, 2023; Los Angeles County Planning, 2014; San Bernardino County, 2023; CGS, 2023
 NOTE: No data available for Imperial County, Orange County or Riverside County.

Connect SoCal 2024 PEIR

Map 3.12-1
 Mineral Resource Zones in the SCAG Region





SOURCE: ESA, 2022; CalGEM, 2023

Connect SoCal 2024 PEIR

Map 3.12-2
Oil and Natural Gas Resources in the SCAG Region



3.12.4 SOURCES

- California Division of Mines and Geology (CDMG). 1999. *Guidelines for Classification and Designation of Mineral Lands*.
- California Geologic Energy Management (CalGEM). 2022. *Statutes & Regulations*. January.
- CalGEM. 2023a. *Oil and Gas*. January.
- CalGEM. 2023b. *Well Finder*. <https://maps.conservation.ca.gov/doggr/wellfinder/>. Accessed July 21, 2023.
- California Geological Survey (CGS). 2018. *Aggregate Sustainability in California*.
- CGS. 2023. *California Non-Fuel Mineral Production 2020*. January 3.
- California State Mining and Geology Board (SMGB). 2018. *Surface Mining and Reclamation Act of 1975 Statutes and Regulations*. July.
- Imperial County. 2016. *Imperial County General Plan*. Conservation & Open Space Element. March 8.
- Los Angeles County, 2022. *Los Angeles County General Plan*. Chapter 9, Conservation and Natural Resources Element.
- Orange County Public Works. 2020. *Orange County General Plan*. Chapter VI, Resources Element.
- Riverside County Planning Department. 2015. *General Plan: Multipurpose Open Space Element*. December 8.
- San Bernardino County, Land Use Services. 2019. *San Bernardino Countywide Plan, Draft EIR*. Chapter 5.11, Mineral Resources. June.
- Southern California Association of Governments (SCAG). 2015. *2016 Regional Transportation Plan/Sustainable Communities Strategy PEIR*. November 2015.
- Ventura County Resource Management Agency. 2020. *Ventura County General Plan*. Chapter 8, Natural Resources. September.

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3.13 NOISE

This section of the 2024 PEIR describes the ambient noise characteristics in the SCAG region, sets forth the regulatory framework that affects noise, and evaluates and discusses the potential impacts of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible.

3.13.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for noise follow:

- *A-weighting*: This is the method commonly used to quantify environmental noise that involves evaluation of all frequencies of sound, with an adjustment to reflect the constraints of human hearing. Because the human ear is less sensitive to low and high frequencies than to midrange frequencies, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called A-weighting (dBA).
- *Ambient*: Ambient is the total noise in the environment, excluding noise from the source of interest.
- *Community noise equivalent level (CNEL)*: CNEL represents the average daytime noise level during a 24-hour day, adjusted to an equivalent level to account for people's lower tolerance of noise during the evening and nighttime hours. Because community receptors are more sensitive to unwanted noise intrusion during the evening and night, an artificial decibel increment is added to quiet-time noise levels. Sound levels are increased by 5 dBA during the evening, from 7 p.m. to 10 p.m. and by 10 dBA during the nighttime, from 10 p.m. to 7 a.m. during this quiet time period.
- *Day-night equivalent level (L_{dn})*: L_{dn} is a measure of the 24-hour average noise level at a given location. It is based on a measure of the L_{eq} noise level over a given time period. The L_{dn} is calculated by averaging the L_{eq} for each hour of the day at a given location after penalizing the "sleeping hours" (defined as 10 p.m. to 7 a.m.), by 10 dBA to account for the increased sensitivity of people to noises that occur at night. L_{dn} is also referred to as day-night average (DNL) sound level in some cases.
- *Decibel (dB)*: dB is a unitless measure of sound on a logarithmic scale that indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micropascals.
- *Effective perceived noise level (EPNL)*: The basic element for aircraft noise certification criteria is the noise evaluation measure known as effective perceived noise level, EPNL, in units of EPNdB, which is a single number evaluator of the subjective effects of airplane noise on human beings. EPNL consists of instantaneous perceived noise level, PNL, corrected for spectral irregularities, and for duration. The spectral irregularity correction, called "tone correction factor", is made at each time increment for only the maximum tone.
- *Equivalent sound level (L_{eq})*: L_{eq} is a term typically used to express time averages. It is a steady-state energy level that is equivalent to the energy content of a varying sound level over a stated period of time, which means that the L_{eq} represents the noise level experienced over a stated period of time averaged as a single noise level.

- *Frequency*: Frequency is the number of cycles per unit of time (seconds), expressed in hertz (Hz).
- *Noise*: Noise is any sound that annoys or disturbs humans or that causes or tends to cause an adverse psychological or physiological effect on humans. Any unwanted sound.
- *Noise level (LN)*: Another measure used to characterize noise exposure, LN is the variation in sound levels over time, measured by the percentage exceedance level. L10 is the A-weighted sound level that is exceeded for 10 percent of the measurement period, and L90 is the level that is exceeded for 90 percent of the measurement period. L50 is the median sound level. Additional statistical measures include L_{min} and L_{max} , the minimum and maximum sound levels, respectively, measured during a stated measurement period.
- *Peak Particle Velocity (PPV)*: Defined as the maximum instantaneous positive or negative peak of the vibration signal, usually measured in inches per second (in/sec).
- *Sound*: A vibratory disturbance created by vibrating objects, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- *Sound Exposure Level (SEL)*: This metric represents all the acoustic energy (a.k.a. sound pressure) of an individual noise event as if that event had occurred within a one-second time period. SEL captures both the level (magnitude) and the duration of a sound event in a single numerical quantity, by "squeezing" all the noise energy from an event into one second. This provides a uniform way to make comparisons among noise events of various durations.
- *Vibration*: Vibration is the mechanical motion of earth or ground, building, or other type of structure, induced by the operation of any mechanical device or equipment located upon or affixed thereto. For purposes of this report, the magnitude of the vibration shall be stated as the acceleration in "g" units (1 g is equal to 32.2 feet/second², or 9.81 meters/second²).

NOISE FUNDAMENTALS

Noise is defined as unexpected and unwanted sound. Unlike other linear measures, such as weight and time, noise levels are measured in decibels (dB) on a logarithmic scale. Thus, doubling a noise source, such as traffic volumes, does not double the noise level, but instead increases the resultant noise level by 3 dB (FTA 2018; Caltrans 2020a). Conversely, reducing a noise source in half results in a 3 dB decrease (Caltrans 2013). Thus, due to the logarithmic scale of the decibel unit, sound levels are not added or subtracted arithmetically. Moreover, in cases where existing ambient noise levels are already relatively high, there will be a small change in overall noise levels when a newer and lesser noise source is added. For example, when 70 dB ambient noise levels are combined with a 60 dB noise source, the resulting noise level equals 70.4 dB (Caltrans 2013).

A significant challenge in managing and mitigating noise is that not every person or community perceives and responds to noise in the same way. From an individual to the neighborhood level, there are different thresholds and tolerances for sound. Furthermore, one community (e.g., urban environment) may deem a land use (e.g., airport expansion) acceptable within a certain noise level, while another (e.g., suburban) might not. Moreover, sensitive receptors, such as residential areas, convalescent homes, schools, auditoriums, and other similar land uses, may be affected to a greater degree by increased noise levels than industrial, manufacturing, or commercial facilities. The effects of noise can range from interference with sleep, concentration, and communication, to the causation of physiological and psychological stress, and at the highest intensity levels, hearing loss (USEPA 1978).

The method commonly used to quantify environmental noise involves evaluation of all frequencies of sound, with an adjustment to reflect the constraints of human hearing. Since the human ear is less sensitive to low and high frequencies than to midrange frequencies, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called “A-weighting,” written as dBA (Caltrans 2013). In practice, environmental noise is measured using a sound level meter that includes an electronic filter corresponding to the A-weighted frequency spectrum. Typical examples can be used to illustrate sound sources that correlate to measure A-weighted sound levels and the subjective loudness to a person (**Table 3.13-1, Common Sound Levels and Loudness**).

TABLE 3.13-1 Common Sound Levels and Loudness

DECIBEL (DB)	SUBJECTIVE LOUDNESS	SOURCE OF SOUND
130	Threshold of pain	Military jet aircraft take-off from aircraft carrier with afterburner at 50 feet
120	Uncomfortably loud	Turbo-fan aircraft at takeoff power at 200 feet; rock band
110	Very loud	Boeing 707 or DC-8 aircraft at 1 nautical mile (6,080 feet) before landing; jet flyover at 1,000 feet; Bell J-2A helicopter at 100 feet
100		
90		
80	Moderately loud	Boeing 737 or DC-9 aircraft at 1 nautical mile before landing; power mower; motorcycle at 25 feet; car wash at 20 feet
70		High urban ambient sound; diesel truck at 40 miles per hour (mph) at 50 feet; diesel train at 45 mph at 100 feet; passenger car at 65 mph at 25 feet; food blender; garbage disposal
60		Living room music; radio or TV audio; vacuum cleaner
50	Quiet	Air conditioning unit at 100 feet; dishwasher (rinse) at 10 feet; conversation
40		Large transformers at 100 feet
30		Bird calls; lowest limit of urban ambient sound
20	Just audible	Quiet living room
10		Average whisper

Sources: Adapted from: Federal Interagency Committee on Noise 1992, Table B.1; Cowan 1993

VIBRATION MEASUREMENT

Vibration is an oscillatory motion in terms of displacement, velocity, or acceleration. Vibration is typically measured as peak particle velocity (PPV) in inches per second. In this context, vibration refers to the minimum groundborne or structure-borne motion that causes a normal person to be aware of the vibration by means such as, but not limited to, sensation by touch or visual observation of moving objects. The effects of groundborne vibration include movements of the building floors that can be felt, rattling of windows, and shaking of items on shelves or hangings on the walls. In extreme cases, vibration can cause damage to buildings. The noise radiated from the motion of the room surfaces is called groundborne noise (**Table 3.13-2, Typical Levels of Groundborne Vibration**). The vibration motion normally does not provoke the same adverse human reactions as the noise unless there is an effect associated with the shaking of the building. In addition, the vibration noise can only occur inside buildings. Similar to the propagation of noise, vibration propagated from the source to the receptor depends on

the receiving building (i.e., the weight of the building), soil conditions, layering of the soils, the depth of groundwater table, and so forth.

TABLE 3.13-2 Typical Levels of Groundborne Vibration

RESPONSE	VELOCITY LEVEL*	TYPICAL SOURCES (AT 50 FEET)
Minor cosmetic damage of fragile buildings	100	Blasting from construction projects
Difficulty with tasks such as reading a video display terminal (VDT) screen	90	Bulldozers and other heavy tracked construction equipment
	80	Rapid transit, upper range
Residential annoyance, infrequent events	70	High speed rail, typical
Residential annoyance, frequent events		
Approximate threshold for human perception	60	Bus or truck, typical
	50	Typical background vibration

Source: FTA 2018.

Table Note:

* Root mean square (RMS) vibration velocity level in VdB relative to 10⁻⁶ inches/second

AMBIENT NOISE LEVEL

The 38,000-square-mile SCAG region includes six counties and 191 cities. It covers a diverse array of land uses that range from quiet, undeveloped rural areas to loud, dense, urban areas. Ambient noise levels for areas where sensitive receptors may be located can range from 46 dBA for a small town or quiet suburban area to greater than 87 dBA for an urban area next to a freeway (USEPA 1974). This 2024 PEIR presents a discussion of noise levels associated with different noise sources, thereby allowing the reader to infer the noise level at different locations depending on the proximity of a location to a noise source. Since the range of ambient noise levels is so vast, a variety of land uses and locations were sampled in order to characterize a selection of representative ambient noise levels. Six locations were selected within the SCAG region to represent the range of ambient noise conditions by land use types (**Table 3.13-3, Ambient Noise Sampling Data**).

The most common noise source within the SCAG region is traffic on highways and on arterial roadways. Higher levels of noise from traffic are generally due to higher traffic volumes and faster travel speeds. Aircraft noise is also present in many areas of the SCAG region, with higher noise levels generated during takeoff and landing. Rail traffic and industrial and commercial activities also contribute to the noise level. Other contributors may also include construction, garbage collecting trucks, helicopters (news, police activity and tourism) and sporting/special events.

TABLE 3.13-3 Ambient Noise Sampling Data

LOCATION	LAND USE	PEAK HOUR NOISE LEVEL (DBA, LEQ)
City of Los Angeles (Mission Hills)	Cemetery	62
City of Los Angeles (Baldwin Hills)	Residential (Multi-Family/Industrial Adjacent)	60
City of Riverside	Institutional (University)	56
City of Pasadena	Mixed-Use (Multi-Family Residential and Retail)	63
City of Los Angeles (Del Rey)	Residential (Single Family)	63
City of Moorpark	Recreational (City Park)	48
City of Los Angeles (Boyle Heights)	Institutional (High School/Middle School Adjacent)	57

Source: SCAG 2019.

TRANSPORTATION

Many principal noise generators within the SCAG region are associated with transportation (i.e., airports, freeways, arterial roadways, seaports, and railroads). However, local collector streets are not considered to be a significant source of noise since traffic volumes and travel speeds are generally much lower than for freeways and arterial roadways.

AIRPORTS AND AVIATION

The six-county SCAG region is home to an expansive multiple airport system that includes eight commercial airports with scheduled passenger service, seven government/military airfields, and more than 30 reliever and general aviation airports. The eight commercial service airports in the region with scheduled passenger service are: Hollywood-Burbank (BUR), Imperial (IPL), Long Beach (LGB), Los Angeles (LAX), Ontario (ONT), Palm Springs (PSP), Santa Ana (SNA), and San Bernardino (SBD)¹. Sixteen of the airports in the region are designated by the Federal Aviation Administration (FAA) as reliever airports, which means that those airports could provide congestion relief for any of the commercial service airports in the region if needed. With such a large and versatile transportation system, the SCAG region airports support a significant amount of passenger and goods movement, and the subsequent volume of air traffic. See **Table 3.13-4, Major Commercial Airports within the SCAG Region** (SCAG 2023).

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

¹ The passenger service at SBD only started in August 2022.

TABLE 3.13-4 Major Commercial Airports within the SCAG Region

AIRPORT	LOCATION	ASSOCIATED PLAN	CURRENT NOISE CONTOUR AVAILABLE?
Ontario International Airport	Ontario	LA/Ontario International Airport Land Use Compatibility Plan	Yes
Los Angeles International Airport	Los Angeles	Los Angeles County Airport Land Use Plan	Yes
Long Beach Airport	Long Beach	Los Angeles County Airport Land Use Plan	No
Palm Springs International Airport	Palm Springs	Riverside County Airport Land Use Compatibility Plan	No
John Wayne Airport	Santa Ana	Airport Environs Land Use Plan for John Wayne Airport	Yes
Imperial County Airport	Imperial	Airport Land Use Compatibility Plan for Imperial County Airports	No
Bob Hope Airport	Burbank	Los Angeles County Airport Land Use Plan	Yes

Source: SCAG 2023 (Appendix F of this 2024 PEIR)

Table Note: SBD does not have noise contour available as its passenger service began in August 2022, and thus available data is limited.

Typically, most major public airports will have an airport land use plan that provides guidance on noise levels and land use in adjacent areas. The FAA measures airport-related noise in communities in terms of overall exposure rather than single events such as takeoffs and landings since overall exposure would account for the overall number of noise events and the time when these events occur. The day night average sound level (L_{dn}) is the standard federal (FAA and U.S. Environmental Protection Agency [USEPA]) metric for this measurement; however, the FAA also accepts the CNEL when a state requires that metric to assess noise effects. The State of California Department of Transportation Division of Aeronautics adopted the CNEL as their methodology for describing airport noise exposure (Caltrans 2019). Noise levels computed by these two methods typically differ by less than 1 dBA. The resulting noise contour map identifies geographic areas that are exposed to various levels of impacts from airport noise. Areas that are within the noise contours of 65 dBA CNEL and above, associated with airport activities, are considered to be incompatible with certain land uses, including residences, schools, hospitals, and childcare facilities (FAA 2007).

The FAA regulates the maximum noise level that an individual civil aircraft can emit by requiring certain noise certification standards, which designates a “stage” classification to certain maximum noise level requirements. Currently, the FAA has aircraft standards up to Stage 5 for jet aircraft—Stage 1 being the loudest and Stage 5 being the quietest (FAA 2023). In 1999, the Naples Airport Authority (NAA) was the first to successfully ban Stage 1 aircraft and in 2001, they became the first and only airport in the country to successfully complete a FAA Part 161 study, *Notice and Approval of Airport Noise and Access Restrictions*, to ban Stage 2 jet aircraft. The Airport Noise and Capacity Act (see discussion below under Regulatory Framework) led to the ban of Stage 1 and 2 jet aircraft in the US in 1985 and 2015, respectively, unless modified to meet Stage 3 standards. The international community established and recently approved the Stage 5 standard which went into effect December 31, 2020.

FREEWAYS, HIGHWAYS, AND ARTERIAL ROADWAYS

The SCAG region has more than 73,000 roadway lane miles (SCAG 2023). Regionally significant arterials provide access to the freeway system and often serve as parallel alternate routes; in some cases, they are the only major system of transportation available to travelers. Typical arterial roadways have one or two lanes of traffic in each direction, with some containing as many as four lanes in each direction. Traffic noise is generated primarily from vehicles and dominated by trucks. In general, higher traffic volumes, higher speeds, and greater numbers of trucks will increase the noise level. Vehicle noise comes from noises generated by the engine, exhaust, and tires, and is often exacerbated by vehicles in a state of disrepair, such as defective mufflers or struts.

There are also environmental factors that affect noise from highway and roads. The level of traffic noise can be reduced by distance, terrain, vegetation, and intervening obstructions. However, unlike construction noise, traffic noise is a line source, not a point source. Therefore, the attenuation with distance is not as great as for traffic noise. In comparison, a point source such as stationary construction equipment attenuates by 6 dB with every doubling of the distance, whereas a line source such as traffic attenuates only by 3 dB with every doubling of the distance.

Traffic noise can therefore be a significant environmental concern where buffers (e.g., buildings, landscaping, etc.) are inadequate or where the distance to sensitive receptors is relatively short. Given typical daily traffic volumes of 10,000 to 40,000 vehicle trips, noise levels along arterial roadways typically range from L_{dn} 65 to 70 dB at a distance of 50 feet from the roadway centerlines.

In addition to distance, the line of sight also affects the extent to which traffic noise can affect sensitive receptors. Line of sight can be interrupted by roadways that are elevated above grade or depressed below grade; by intervening structures such as buildings, landscaping, and sound walls; or by terrain such as hills. For example, measurements show that depressing a freeway by approximately 12 feet yields a reduction in traffic noise relative to an at-grade freeway of 7 to 10 dB at all distances from the freeway due to the interrupted line of sight. Traffic noise from an elevated freeway is typically 2 to 10 dB less than the noise from an equivalent at-grade facility within 300 feet of the freeway, but beyond 300 feet, the noise radiated by an elevated and at-grade freeway (assuming equal traffic volumes, fleet mix, and vehicle speed) is the same because at short distances, the elevated structure of the freeway itself interrupts the line of sight between the traffic and the sensitive receptor, but that line of sight is reestablished at greater distances (Caltrans 2013). Caltrans also has an extensive sound wall program for areas with residential property built prior to the freeway or prior to a major widening and has hourly noise levels that exceed the 67-dB (L_{eq}) threshold, and where the wall would be able to achieve at least a 5-dB reduction and the cost would not exceed \$35,000 per residential unit (for the 1996 and 1997 calendar years) (Caltrans 2009). A typical wall that interrupts the line of sight is capable of reducing noise levels by 10 to 15 dB.

RAILROAD OPERATIONS

Railroad operations generate high, relatively brief, intermittent noise events. These noise events are an environmental concern for sensitive receptors located along rail lines and in the vicinities of switching yards. Locomotive engines; the interaction of steel wheels and rails from rolling noise, impact noise when a wheel encounters a rail joint, turnout, or crossover, and squeal generated by friction on tight curves; and warning devices such as air horns and crossing bell gates are the primary sources of rail noise. Noise levels vary widely for different types of rail operations (**Table 3.13-5, Reference Noise Levels for Various Rail Operations**).

TABLE 3.13-5 Reference Noise Levels for Various Rail Operations

SOURCE/TYPE		REFERENCE CONDITION	REFERENCE NOISE LEVEL (SEL, DBA)
Commuter rail, at-grade	Locomotives	Diesel-electric, 3,000 horsepower	92
		Electric	90
	Diesel multiple unit	Diesel-powered, 1,200 horsepower	85
	Horns	Within 0.25 miles of grade crossing	110
	Cars	Ballast, welded rail	82
Rail transit		At-grade, ballast, welded rail	82
Transit whistles/warning devices		Within 0.125 miles of grade crossing	93
Automated guideway transit	Steel wheel	Aerial, concrete, welded rail	80
	Rubber tire	Aerial, concrete, guideway	78
Monorail		Aerial, straddle beam	82
Maglev		Aerial, open guideway	72

Source: FTA 2018.

FREIGHT TRAINS

Locomotive engine noise and wheel-to-rail interactions are the primary source of noise generated by freight train pass-by events. Engine noise increases when the train is being pulled uphill. Wheel noise increases approximately 6 dB for each doubling of train velocity. A rail line supporting 40 freight trains per day generates approximately L_{dn} 75 dB at 200 feet from the tracks. Freight trains also generate substantial amounts of groundborne noise and vibration in the vicinity of the tracks. Groundborne noise and vibration is a function of both the quality of the track and the operating speed of the train.

The SCAG region is served by two Class I railroads: Union Pacific Railroad (UP) and Burlington Northern/Santa Fe Railway (BNSF) (SCAG 2012). BNSF rail lines extend south from switching yards in eastern Los Angeles to the Los Angeles and Long Beach ports complex and east to Arizona and points beyond via San Bernardino County. In addition, there are three Class III railroads (short lines) serving the region, the Pacific Harbor Line (which handles all rail coordination in the Ports of Los Angeles and Long Beach), the Los Angeles Junction Railway (which provides switching service in the Vernon area for the two main line railroads), and the Ventura County Railroad (which serves the Port of Hueneme).

Completed in 2002, the Alameda Corridor provides a substantial long-term reduction in noise and vibration associated with rail operations in the vicinities of the Ports of Long Beach and Los Angeles by eliminating over 200 grade-level street/rail crossings (Alameda Corridor Transportation Authority 2019). The Alameda Corridor consolidates the operations of UP and BNSF on 90 miles of existing branch line tracks into one 20-mile corridor along Alameda Street. This corridor provides a direct connection between the ports of Long Beach and Los Angeles and the UP and BSNF switching yards in eastern Los Angeles. The project includes four overpasses and three underpasses at intersections south of SR-91 that allow vehicles to pass above the trains. North of SR-91, trains pass through a 10-mile, 33-foot-deep trench (Alameda Corridor Transportation Authority 2019). The construction of tracks in a below-grade trench, track construction on new base materials, and the use of continuous welded track reduce noise impacts on adjacent uses from trains associated with the ports. The project also includes sound

walls in certain locations to mitigate vehicle noise along Alameda Street in residential neighborhoods and other sensitive areas.

COMMUTER RAIL

In general, the noise generated by commuter rail facilities (powered by either diesel or electric locomotives) is from the locomotives themselves. In the SCAG region, there are two commuter and intercity passenger train operators: Amtrak and the Southern California Regional Rail Authority (SCRRA).

Amtrak operates five routes that travel through the SCAG region: Texas Eagle, Coast Starlight, Pacific Surfliner, Southwest Chief, and Sunset Limited. These routes serve Chicago, St. Louis, Dallas, San Antonio, Los Angeles, Portland, Seattle, San Luis Obispo, Santa Barbara, San Diego, Albuquerque, and New Orleans (Amtrak 2019). A typical Amtrak pass-by event generates SEL 107 dB at 50 feet; two such events during the daytime or evening periods generate approximately L_{dn} 61 dB at 50 feet and approximately L_{dn} 52 dB at 200 feet. Nine such events generate approximately L_{dn} 67 dB at 50 feet and L_{dn} 58 dB at 200 feet.

The SCRRA operates the Metrolink commuter rail system. This system currently includes 59 stations and 7 rail lines: Antelope Valley, Inland Empire–Orange County, Orange County, Riverside, San Bernardino, Ventura, and 91 (Metrolink 2019). Noise levels generated by Metrolink are similar to those associated with Amtrak.

URBAN RAIL TRANSIT

This category includes both heavy and light-rail transit. Heavy rail is generally defined as electrified rapid transit trains with dedicated guideways, and light rail as electrified transit trains that do not require dedicated guideways. In general, noise increases with speed and train length. Sensitivity to rail noise generally arises when there is less than 50 feet between the rail and sensitive receptors. Individual urban rail transit pass-by events generate substantially less noise than commuter rail events, but the aggregate noise impact for sensitive uses along the line can be similar or greater due to the much higher frequency of pass-by events. Complaints about groundborne vibration from surface track are more common than complaints about groundborne noise. A significant percentage of complaints about noise can be attributed to the proximity of switches, rough or corrugated track, or wheel flats.

In the SCAG region, the Los Angeles County Metropolitan Transportation Authority (Metro) provides urban rail transit for their 1,447-square-mile service area. Metro operates 109 miles of rail service on two subway lines (B Line and D Line) and four light-rail lines (A Line, C line, E Line, and K Line) (Metro 2023). The D Line extends from downtown Los Angeles west to the Koreatown neighborhood with 8 existing stations. The B Line extends from downtown Los Angeles west to the Koreatown neighborhood and then north to North Hollywood with 14 existing stations. The A Line extends from Long Beach to Azusa via the regional connector with 44 existing stations. The E Line extends from Santa Monica to East Los Angeles with 29 existing stations. The Gold Line extends from East Los Angeles to Azusa with 27 existing stations. The K Line extends from Norwalk west to El Segundo and south to Redondo Beach with 14 existing stations. In addition, Metro has two (G Line and J Line) bus rapid transitways (BRTs). The G Line extends from North Hollywood, travels west to Woodland Hills, and then north to Chatsworth, with 17 existing stations. The J Line extends from El Monte west to downtown Los Angeles and then south to San Pedro with 12 existing stations.

PORT OPERATIONS

The three major ports in the SCAG region, Port of Los Angeles, Port of Long Beach, and Port of Hueneme in Ventura County, provide a major link between the United States and the Pacific Rim countries. Noise associated with port operations is typically generated from three sources: ships using the port facilities, equipment associated with cargo activity within the port, and truck and rail traffic that move cargo to and from the ports. These sources affect the ambient noise levels in the port areas. Residential areas in San Pedro, Wilmington, and West Long Beach are affected most by truck and rail traffic related to the ports.

Since 2000, the Port of Los Angeles has handled more container volume of cargo than any other port in the Western Hemisphere. In fiscal year 2019, the Port of Los Angeles handled 178 million metric revenue tons (MMRT) of cargo (Port of Los Angeles 2019), Port of Long Beach handled 173 MMRT (The Harbor Department 2019), and Port of Hueneme handled 1.65 MMRT (Port of Hueneme 2019). When combined together, the Port of Los Angeles and the Port of Long Beach rank ninth in the world for container volume (Port of Los Angeles 2019). The Ports of Los Angeles, Long Beach, and Hueneme are major regional economic development centers. The San Pedro Bay Ports, which include the Los Angeles and Long Beach Ports, currently handle approximately 30 percent of the cargo volume in the country (Port of Los Angeles 2019); the Port of Hueneme in Ventura County is a major shipping point for automobiles, non-automotive roll-on roll off cargo, project cargo, fresh produce, and liquid bulk (Port of Hueneme 2019).

INDUSTRIAL AND MANUFACTURING NOISE

Noise from industrial complexes and manufacturing plants are characterized as stationary point sources of noise even though they may include mobile sources such as forklifts. Local governments typically regulate noise from industrial and manufacturing equipment and activities through enforcement of noise ordinance standards and implementation of general plan policies. Industrial complexes and manufacturing plants are generally located away from sensitive land uses, and, as such, noise generated from these sources generally has less effect on the local community.

CONSTRUCTION NOISE

Noise from construction sites is characterized as stationary point sources of even though they may include mobile sources, such as graders, they generally move slowly. Local governments typically regulate noise from construction equipment and activities through enforcement of noise ordinance standards and imposition of conditions of approval for building or grading permits.

Construction noise related to transportation projects is typically addressed in each project's noise analysis report and related environmental document. Most projects will not require modeling or any form of analysis associated with construction-related noise. Some projects may require basic noise calculations. For projects that require compliance with local ordinances, more-detailed analysis techniques may be required.

Construction-related noise levels generally fluctuate depending on the construction phase, equipment type and duration of use, distance between noise source and receptor, and line of sight between the noise source and the receptor (temporary barriers can block the line of sight to reduce noise levels). The Federal Transit Administration (FTA) has established typical noise levels associated with various types of construction-related machinery (**Table 3.13-6, Construction Equipment Noise Levels**). In contrast to industrial and manufacturing plants, construction sites are located throughout the region and are often located within, or adjacent to, residential districts and other sensitive receptors. While individual construction sites come and go (as buildings are constructed and completed), there is generally ongoing construction activity in the region.

TABLE 3.13-6 Construction Equipment Noise Levels

EQUIPMENT	TYPICAL NOISE LEVEL (DBA) AT 50 FEET FROM SOURCE
Air Compressor	80
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	82
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	80
Paver	85
Pile-driver (Impact)	101
Pile-driver (Sonic)	95
Pneumatic Tool	85
Pump	77
Rail Saw	90
Rock Drill	95
Roller	85
Saw	76
Scarifier	83
Scraper	85
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Truck	84

Source: FTA 2018

In general, construction activities generate high noise levels intermittently on and adjacent to the construction sites, and the related noise impacts are short-term in nature for individual sites but ongoing throughout the region. The dominant source of noise from most construction equipment is the engine, usually a diesel engine, with inadequate muffling. In a few cases, however, such as impact pile driving or pavement breaking, noise generated by the process dominates. Construction equipment can be considered to operate in two modes, stationary and mobile. Stationary equipment operates in one location for one or more days at a time, with either a fixed-power operation (pumps, generators, compressors) or a variable noise operation (pile drivers, pavement breakers). Mobile equipment moves around the construction site with power applied in cyclic fashion (bulldozers, loaders), or movement to and from the site (trucks). The noise levels of these point sources decrease by approximately 6 dB with each doubling of distance from the noise source (e.g., noise levels from excavation might be approximately 83 dB at 100 feet from the site, and about 77 dB at 200 feet from the site). Interior noise levels from construction are approximately 10 dB (open windows) to 20 dB (closed windows) less than exterior noise levels due to the attenuation provided by building walls.

Construction projects often create activities that extend beyond project limits. These can include activities such as trucks supplying material (stone, concrete, steel, etc.) to a project, trucks hauling soil and/or demolition materials from a project site, activity associated with off-site operations such as materials storage areas, and effects of detoured or rerouted traffic due to construction activities. Haul routes may be specifically designated for use by construction-related traffic when supplying and hauling excess material from the project site, potentially creating a high source of noise depending on the number and frequency of trucks utilizing the route.

CONSTRUCTION VIBRATION

Typically, groundborne vibration generated by man-made activities (i.e., rail and roadway traffic, operation of mechanical equipment and typical construction equipment) diminishes rapidly with distance from the vibration source. Construction activities, such as the use of bulldozers, would have the greatest effect on vibration-sensitive land uses. Energy is lost during the transfer of energy from one particle to another, and, as a result, vibration becomes less perceptible with increasing distance from the source.

Construction-related vibration has the potential to damage structures and be a source of annoyance to individuals who live or work near these construction activities. Pile drivers can generate vibrations in excess of 0.5 PPV at a distance of 25 feet, see **Table 3.13-7, Construction Equipment Vibration Levels**, which can result in damage to reinforced concrete. Vibration levels generated by pile driving vary depending on soil conditions, construction methods, and equipment used. Depending on the proximity of existing structures to the pile driving, the structural condition of the existing structures, and the methods of construction used, vibration levels caused by pile driving or other foundation work with a substantial impact component such as blasting, rock or caisson drilling, and site excavation or compaction may be high enough to damage existing structures. A vibration analysis completed by Caltrans indicated that "extreme care must be taken when sustained pile driving occurs within 7.5 meters (25 feet) of any building, and 15 to 30 meters (50 to 100 feet) of a historical building or building in poor condition." (Caltrans 2002)

TABLE 3.13-7 Construction Equipment Vibration Levels

EQUIPMENT		PPV AT 25 FEET
Pile Driver (impact)	Upper Range	1.518
	Typical	0.644
Pile Driver (Sonic)	Upper Range	0.734
	Typical	0.170
Vibratory Roller		0.210
Clam Shovel		0.202
Hydro Mill	In Soil	0.008
	In Rock	0.017
Large Bulldozer		0.089
Caisson Drilling		0.089
Loaded Trucks		0.076
Jackhammer		0.035
Small Bulldozer		0.003

Source: Adapted from FTA 2018

SENSITIVE RECEPTORS

Some land uses are considered more sensitive to ambient noise levels than others due to noise exposure (in terms of both exposure time and “insulation” from noise) and the types of activities typically involved. Residences, motels, and hotels; daycares; schools; libraries; churches; hospitals; nursing homes and senior centers; and natural areas, parks, and outdoor recreation areas are generally more sensitive to noise than are commercial and industrial land uses. The 38,000-square-mile SCAG region contains a large number of these sensitive land uses. The noise-sensitive areas of residences, schools, libraries, churches, hospitals, nursing homes, natural areas, and parks are generally more sensitive to noise than are commercial and industrial land uses. Increases in noise near these sensitive receptors are more likely to cause an adverse community response.

As such, the noise standards for sensitive land uses are more stringent than those for less sensitive uses. To protect various human activities and sensitive land uses (e.g., residences, schools, and hospitals) lower noise levels are needed. An exterior noise level of L_{dn} 55 to 60 dB is the upper limit for intelligible speech communication inside a typical home. In addition, social surveys and case studies have shown that complaints and community annoyance in residential areas begin to occur at L_{dn} 55 dB. Sporadic complaints associated with the L_{dn} 55 to 60 dB range give way to widespread complaints and individual threats of legal action within the L_{dn} 60 to 70 dB range. At L_{dn} 70 dB and above, residential community reaction typically involves threats of legal action and strong appeals to local officials to stop the noise.

Sensitive receptors for vibration are the same as for noise, with one exception. Historic structures are potentially sensitive to excessive vibration because ground vibration will excite building structures, and if the vibration levels are high, there is a potential for structural damage. The Caltrans Transportation and Construction Vibration Guidance Manual provides a summary of construction vibration effects on buildings, including historic buildings (Caltrans 2020a). Using the most conservative values in the report, residential buildings with plastered walls or

masonry may be damaged when a single vibration event exceed 0.50 PPV or frequent vibration events exceed 0.2 PPV, whereas fragile historic buildings, objects of historic interest, ruins, or ancient monuments may be damaged when a single vibration event exceeds 0.12 PPV or frequent vibration events exceed 0.08 PPV (Caltrans 2020a).

3.13.2 REGULATORY FRAMEWORK

The federal government sets noise standards for transportation-related noise sources that are closely linked to interstate commerce, such as aircraft, locomotives, and trucks; and, for those noise sources, the state government is preempted from establishing more stringent standards. The state sets noise standards for those transportation noise sources that are not preempted from regulation, such as automobiles, light trucks, and motorcycles. Noise sources associated with industrial, commercial, and construction activities are generally subject to local control through noise ordinances and general plan policies.

FEDERAL

NOISE CONTROL ACT OF 1972

The Noise Control Act of 1972, as codified in 42 U.S. Code Section 4901 et seq., establishes a means for effective coordination of federal research and activities in noise control, authorizes the establishment of federal noise emission standards for products distributed in commerce, and provides information to the public with respect to the noise emission and noise reduction characteristics of such products (USEPA 2022).

NOISE STANDARDS FOR INTERSTATE RAIL AND MOTOR CARRIERS, CONSTRUCTION EQUIPMENT, AND TRUCKS (TITLE 40 CODE OF FEDERAL REGULATIONS)

The Federal Highway Administration (FHWA) sets federal regulations related to noise limits for locomotives, and medium and heavy trucks, and standards for noise studies and studies for federal and federal-aid highway projects.

PART 201

Federal regulations for railroad noise are contained in Title 40 Code of Federal Regulations (CFR) Parts 201 and 49 CFR Part 210. The regulations set noise limits for locomotives and are implemented through regulatory controls on locomotive manufacturers.

PART 202

Federal regulations regarding motor carriers engaged in interstate commerce are contained in 40 CFR Part 202. The regulations set noise limits for motor carriers engaged in interstate commerce, including setting standards for highway operations.

PART 204

Title 40 CFR Part 204 sets noise emission standards for construction equipment. The regulations set noise standards and requirements as well as testing, for construction equipment including air compressors.

PART 205

Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 CFR Part 205, Subpart B. The federal truck pass-by noise standard is 80 dB at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers. FHWA regulations for noise abatement must be considered for federal or federally funded projects involving the construction of a new highway or significant modification of an existing freeway when the project would result in a substantial noise increase or when the predicted noise levels approach or exceed the Noise Abatement Criteria (NAC).

ABATEMENT OF HIGHWAY TRAFFIC NOISE AND CONSTRUCTION NOISE [23 CFR PART 772]

Title 23 CFR Section 772.1 et seq. provides procedures for preparing operational and construction noise studies and evaluating noise abatement considered for federal and federal-aid highway projects. Under 23 CFR Section 772.7, projects are categorized as Type I or Type II projects. FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes. A Type II project is a noise barrier retrofit project that involves no changes to highway capacity or alignment.

Type I projects include those that create a completely new noise source, as well as those that increase the volume or speed of traffic or move the traffic closer to a receiver. Type I projects include the addition of an interchange, ramp, auxiliary lane, or truck-climbing lane to an existing highway, or the widening of an existing ramp by a full lane width for its entire length. Projects unrelated to increased noise levels such as striping, lighting, signing, and landscaping projects are not considered Type I projects.

Under 23 CFR Section 772.11, noise abatement must be considered for Type I projects if the project is predicted to result in a traffic noise impact. In such cases, 23 CFR Section 772 requires that the project sponsor consider noise abatement before adoption of the environmental document. This process involves identification of noise abatement measures that are reasonable, feasible, and likely to be incorporated into the project, and of noise impacts for which no apparent solution is available.

Traffic noise impacts, as defined in 23 CFR Section 772.5, occur when the predicted noise level in the design year approaches or exceeds the NAC specified in 23 CFR Section 772, or a predicted noise level substantially exceeds the existing noise level (a substantial noise increase). Under these regulations, an impact could result unrelated to the plan if existing noise levels already exceed the NAC. A substantial increase is defined as when an increase in L_{eq} of 12 dB during the peak hour of traffic noise occurs. For sensitive uses, such as residences, schools, churches, parks, and playgrounds, the NAC for interior and exterior spaces is L_{eq} 57 and 66 dB, respectively, during the peak hour of traffic noise.

AIRCRAFT NOISE STANDARDS [14 CFR PART 36]

The FAA has federal regulatory authority over noise emissions levels by aircraft operated in the United States. These requirements are set forth in 14 CFR Part 36. Part 36 establishes maximum acceptable noise levels for specific aircraft types, taking into account the model year, aircraft weight, and number of engines. Pursuant to the federal Airport Noise and Capacity Act of 1990, the FAA established a schedule for complete transition to Part 36 "Stage 3" standards by year 2000. This transition schedule applies to jet aircraft with a maximum takeoff weight in

excess of 75,000 pounds, and thus applies to passenger and cargo airlines, but not to operators of business jets or other general aviation aircraft. The FAA adopted Stage 4 noise standards for all jet aircraft manufactured on or after January 1, 2006 (FAA 2005). Stage 5 noise standards have since been adopted for all new jet aircraft effective December 2017 for aircraft with maximum certificated takeoff weight of 121,254 pounds or more and December 2020 where maximum certificated takeoff weight of less than 121,254 pounds (FAA 2017).

AIRPORT NOISE AND CAPACITY ACT

The Airport Noise and Capacity Act of 1990 (ANCA or “the Noise Act”) (49 U.S.C. 47521 et seq.) sets forth several provisions related to the restriction of aircraft activities at airports. One of the most notable aspects of ANCA is that it further regulates the local imposition of noise and access restrictions proposed after its enactments (October 1990).

AIRPORT NOISE COMPATIBILITY PLANNING (14 CFR PART 150)

Part 150 applies to airport noise compatibility planning and provides the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs. It provides guidance for measuring noise at airports and surrounding areas and for determining exposure of individuals to noise from the operations of an airport. Part 150 also identifies land uses that are normally compatible with various levels of exposure to noise by individuals. It provides guidance on the preparation and execution of noise compatibility planning and implementation programs.

AVIATION SAFETY AND NOISE ABATEMENT ACT

The Aviation Safety Act of 1979 establishes funder for noise compatibility planning and sets the requirements by which airport operators can apply for funding. This is also the law by which Congress mandated that the FAA develop an airport community noise metric to be used by all federal agencies assessing or regulating aircraft noise. The result was DNL. Since California already had a well-established airport community noise metric in CNEL, and because CNEL and DNL are so similar, the FAA expressly allows CNEL to be used in lieu of DNL in noise assessments performed for California airports (FAA 2020).

NOISE ABATEMENT AND CONTROL (24 CFR PART 51, SUBPART B)

The mission of the Department of Housing and Urban Development (HUD) includes fostering “a decent, safe, and sanitary home and suitable living environment for every American.” Accounting for acoustics is intrinsic to this mission, as an environment’s safety and comfort can be compromised by excessive noise. In order to facilitate the creation of suitable living environments, HUD has developed a standard for noise criteria. The basic foundation of the HUD noise program is set out in the noise regulation 24 CFR Part 51 Subpart B, Noise Abatement and Control.

HUD’s noise policy clearly requires noise attenuation measures be provided when proposed projects are located in high noise areas. Within the HUD Noise Assessment Guidelines, potential noise sources are examined for projects located within 15 miles of a military or civilian airport, 1,000 feet from a road, or 3,000 feet from a railroad.

HUD exterior noise regulations state that 65 dBA DNL noise levels or less are acceptable for residential land uses and noise levels exceeding 75 dBA DNL are unacceptable. HUD’s regulations do not contain standards for interior noise levels. Rather, a goal of 45 dBA is set forth, and the attenuation requirements are geared toward achieving

that goal. It is assumed that, with standard construction, any building will provide sufficient attenuation so that if the exterior level is 65 dBA DNL or less, the interior level will be 45 dBA DNL or less.

FEDERAL TRANSIT ADMINISTRATION NOISE AND VIBRATION GUIDANCE

The FTA has published the Transit Noise and Vibration Impact Assessment Manual to provide guidance on procedures for assessing impacts at different stages of transit project development (FTA 2018). The report covers both construction and operational noise impacts and describes a range of measures for controlling excessive noise and vibration. The specified noise criteria are an earlier version of the criteria provided by the Federal Railroad Administration’s High-Speed Ground Transportation Noise and Vibration Impact Assessment (**Table 3.13-8, Construction Vibration Damage Criteria**). In general, the primary concern regarding vibration relates to potential damage from construction. The guidance document establishes criteria for evaluating the potential for damage for various structural categories from vibration (Table 3.13-8).

TABLE 3.13-8 Construction Vibration Damage Criteria

BUILDING CATEGORY	PPV (IN/SEC)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2018

The FTA has also adopted standards associated with human annoyance for determining the groundborne vibration and noise impacts from ground-borne noise on the following three off-site land-use categories: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional (FTA 2018). The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment but that still potentially involve activities that could be disturbed by vibration. The vibration thresholds associated with human annoyance for these three land use categories are shown in **Table 3.13-9, Construction Vibration Human Annoyance Criteria**. No thresholds have been adopted or recommended for commercial or office uses.

TABLE 3.13-9 Construction Vibration Human Annoyance Criteria

LAND USE CATEGORY	FREQUENT EVENTS ^A	OCCASIONAL EVENTS ^B	INFREQUENT EVENTS ^C
Category 1: Buildings where vibration would interfere with interior operations.	65 VdB ^d	65 VdB ^d	65 VdB ^d
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

Source: FTA 2018

Table Notes:

- a "Frequent Events" is defined as more than 70 vibration events of the same source per day.
- b "Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.
- c "Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day.
- d This criterion is based on levels that are acceptable for most moderately sensitive equipment, such as optical microscopes.

RAILROAD NOISE GUIDANCE

The Federal Railroad Administration provides implementation procedures for predicting and assessing noise and vibration impacts of high-speed trains within their High-Speed Ground Transportation Noise and Vibration Impact Assessment (FTA 2012). The document provides three levels of analysis, including a preliminary impact screening, a general assessment, and a detailed analysis, as well as a range of mitigation measures for dealing with adverse noise and vibration impacts. The report also includes noise criteria for potential impacts (**Table 3.13-10, Noise Levels Defining Impact for High-Speed Train Projects**, and **Table 3.13-11, Land Use Categories and Metrics for High-Speed Train Noise Impact Criteria**).

TABLE 3.13-10 Noise Levels Defining Impact for High-Speed Train Projects

EXISTING NOISE EXPOSURE,* L _{EQ(H)} OR L _{DN} (DBA)	PROJECT NOISE IMPACT EXPOSURE,* L _{EQ(H)} OR L _{DN} (DBA)					
	CATEGORY 1 OR 2 SITES			CATEGORY 3 SITES		
	NO IMPACT	MODERATE IMPACT	SEVERE IMPACT	NO IMPACT	MODERATE IMPACT	SEVERE IMPACT
<43	< Ambient+10	Ambient + 10 to 15	>Ambient+15	<Ambient+15	Ambient + 15 to 20	>Ambient+20
43	<51.6	51.6–57.6	>57.6	<56.6	56.6–62.6	>62.6
44	<51.8	51.8–58.6	>58.6	<56.8	56.8–63.6	>63.6
45	<52.0	52.0–58.6	>58.6	<57.0	57.0–63.6	>63.6
46	<52.2	52.2–58.7	>58.7	<57.2	57.2–63.7	>63.7
47	<52.5	52.5–58.9	>58.9	<57.5	57.5–63.9	>63.9
48	<52.7	52.7–59.1	>59.1	<57.7	57.7–64.1	>64.1
49	<53.0	53.0–59.3	>59.3	<58.0	58.0–64.3	>64.3
50	<53.4	53.4–59.5	>59.5	<58.4	58.4–64.5	>64.5
51	<53.7	53.7–59.7	>59.7	<58.7	58.7–64.7	>64.7
52	<54.1	54.1–60.0	>60.0	<59.1	59.1–65.0	>65.0
53	<54.4	54.4–60.4	>60.4	<59.4	59.4–65.4	>65.4
54	<54.9	54.9–60.7	>60.7	<59.9	59.9–65.7	>65.7

EXISTING NOISE EXPOSURE,* L _{EQ(H)} OR L _{DN} (DBA)	PROJECT NOISE IMPACT EXPOSURE,* L _{EQ(H)} OR L _{DN} (DBA)					
	CATEGORY 1 OR 2 SITES			CATEGORY 3 SITES		
	NO IMPACT	MODERATE IMPACT	SEVERE IMPACT	NO IMPACT	MODERATE IMPACT	SEVERE IMPACT
55	<55.3	55.3–61.1	>61.1	<60.3	60.3–66.1	>66.1
56	<55.7	55.7–61.5	>61.5	<60.7	60.7–66.5	>66.5
57	<56.2	56.2–61.9	>61.9	<61.2	61.2–66.9	>66.9
58	<56.7	56.7–62.3	>62.3	<61.7	61.7–67.3	>67.3
59	<57.2	57.2–62.8	>62.8	<62.2	62.2–67.8	>67.8
60	<57.8	57.8–63.3	>63.3	<62.8	62.8–68.3	>68.3
61	<58.4	58.4–63.8	>63.8	<63.4	63.4–68.8	>68.8
62	<58.9	58.9–64.4	>64.4	<63.9	63.9–69.4	>69.4
63	<59.6	59.6–64.9	>64.9	<64.6	64.6–69.9	>69.9
64	<60.2	60.2–65.5	>65.5	<65.2	65.2–70.5	>70.5
65	<60.8	60.8–66.1	>66.1	<65.8	65.8–71.1	>71.1
66	<61.5	61.5–66.7	>66.7	<66.5	66.5–71.7	>71.7
67	<62.2	62.2–67.4	>67.4	<67.2	67.2–72.4	>72.4
68	<62.9	62.9–68.0	>68.0	<67.9	67.9–73.0	>73.0
69	<63.6	63.6–68.7	>68.7	<68.6	68.6–73.7	>73.7
70	<64.4	64.4–69.4	>69.4	<69.4	69.4–74.4	>74.4
71	<65.0	65.0–70.1	>70.1	<70.0	70.0–75.1	>75.1
72	<65.0	65.0–70.8	>70.8	<70.0	70.0–75.8	>75.8
73	<65.0	65.0–71.6	>71.6	<70.0	70.0–76.6	>76.6
74	<65.0	65.0–72.3	>72.3	<70.0	70.0–77.3	>77.3
75	<65.0	65.0–73.1	>73.1	<70.0	70.0–78.1	>78.1
76	<65.0	65.0–73.9	>73.9	<70.0	70.0–78.9	>78.9
77	<65.0	65.0–74.7	>74.7	<70.0	70.0–79.7	>79.7
>77	<65.0	65.0–75.0	>75.0	<70.0	70.0–80.0	>80.0

Source: Federal Railroad Administration 2012, Table 3-1

Table Note:

* L_{dn} is used for land use where nighttime sensitivity is a factor; L_{eq} during the hour of maximum transit noise exposure is used for land use involving only daytime activities.

TABLE 3.13-11 Land Use Categories and Metrics for High-Speed Train Noise Impact Criteria

LAND USE CATEGORY	NOISE METRIC (DBA)	DESCRIPTION OF LAND-USE CATEGORY
1	Outdoor $L_{eq(h)}$ *	Tracts of land where quiet is an essential element in their intended purpose. This category includes lands set aside for serenity and quiet, and such land uses as outdoor amphitheaters and concert pavilions, as well as national historic landmarks with significant outdoor use. Also included are recording studios and concert halls.
2	Outdoor L_{dn}	Residences and buildings where people normally sleep. This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
3	Outdoor $L_{eq(h)}$ *	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, theaters, and churches, where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, and museums can also be considered to be in this category. Certain historical sites, parks, campgrounds, and recreational facilities are also included.

Source: Federal Railroad Administration 2012, Table 3-2

Table Note:

* L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity.

STATE

CALIFORNIA GOVERNMENT CODE SECTION 65302

California Government Code Section 65302 provides a framework for general plans and their content. It requires that the noise element include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state’s noise insulation standards. The noise element shall also identify and appraise noise problems in the community, analyze and quantify current and projected noise levels for (a) highways and freeways; (b) primary arterials and major local streets; (c) passenger and freight online railroad operations and ground rapid transit systems; (d) commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation; (e) local industrial plants, including, but not limited to, railroad classification yards; and (f) other ground stationary noise sources, including, but not limited to, military installations, identified by local agencies as contributing to the community noise environment.

Section 65302 also specifies that noise contours be shown for all of the above listed sources and be stated in terms of CNEL or day-night average level (L_{dn}). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified above. The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise (California Legislative Information, Article 5).

CALIFORNIA NOISE CONTROL ACT

The California Noise Control Act of 1973 (California Health and Safety Code Division 28, Section 46000 et seq), as found in the California Health and Safety Code Division 28, Section 46000 et seq., declares that excessive noise is a serious hazard to public health and welfare, and establishes the Office of Noise Control with responsibility to set standards for noise exposure in cooperation with local governments or the state legislature (California Legislative Information, Division 28).

AIRPORT NOISE STANDARDS (TITLE 21 CALIFORNIA CODE OF REGULATIONS SECTION 5000 ET SEQ.)

The State of California has the authority to establish regulations requiring airports to address aircraft noise impacts on land uses in their vicinities. The State of California's Airport Noise Standards, found in California Code of Regulations (CCR) Title 21, identify a noise exposure level of CNEL 65 dB as the noise impact boundary around airports. Within the noise impact boundary, airport proprietors are required to ensure that all land uses are compatible with the aircraft noise environment, or the airport proprietor must secure a variance from the California Department of Transportation (Caltrans).

NOISE INSULATION STANDARDS (HEALTH & SAFETY CODE SECTION 17922.6)

California Health and Safety Code Section 17922.6 requires noise insulation standards for new multi-family residential units, hotels, and motels that may be subject to relatively high levels of transportation-related noise. For exterior noise, the noise insulation standard is DNL 45 dB in any habitable room and requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than DNL 60 dB (California Legislative Information, Chapter 2).

TOXIC AIR CONTAMINANT IDENTIFICATION AND CONTROL ACT

The Toxic Air Contaminant Identification and Control Act is primarily meant to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel PM and other TACs. However, the regulation has the co-benefit of reducing noise levels associated with engine idling. For more information, refer to Section 3.3, *Air Quality*.

FREEWAY NOISE ATTENUATION (STREETS AND HIGHWAYS CODE, ARTICLE 6 AND VEHICLE CODE, ARTICLE 2.5)

The State of California establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the state pass-by standard is consistent with the federal limit of 80 dB (California Legislative Information, Article 2.5). The state pass-by standard for light trucks and passenger cars (less than 4.5 tons gross vehicle rating) is also 80 dB at 15 meters from the centerline (Government Publishing Office 2019). Additionally, for a motor vehicle weighing more than 5 tons the pass-by standard is 88dB at 15 feet from the centerline of the vehicle (California Legislative Information, Article 2.5). For new roadway projects, Caltrans employs the NAC, promulgated by Code of Federal Regulations (CFR) Title 40, as administered by the FHWA (Government Publishing Office 2019).

California Streets and Highways Code Section 216 relates to the noise effects of a proposed freeway project on public and private elementary and secondary schools. Under this code, a noise impact occurs if, as a result of a proposed freeway project, noise levels exceed 52 dBA L_{eq} in the interior of public or private elementary or secondary classrooms, libraries, multipurpose rooms, or spaces. If a project results in a noise impact under this code, noise abatement must be provided to reduce classroom noise to a level that is at or below 52 dBA L_{eq} . If the noise levels generated from freeway and non-freeway sources exceed 52 dBA L_{eq} prior to the construction of the proposed freeway project, then noise abatement must be provided to reduce the noise to the level that existed prior to construction of the project (California Legislative Information, Article 6).

Streets and Highways Code Section 215.5 implements a priority system to determine the need for the installation of noise attenuation barriers (i.e., soundwalls) along freeways and expressways. The highest consideration is given to residential areas developed prior to the opening of the freeway or where alterations have been made to the freeway that result in a significant increase in ambient noise levels. Other criteria for determining priorities includes the existing and future sound intensity generated by the freeway, the increase in traffic flow since the freeway originally opened, the cost of constructing a soundwall related to expected noise reduction, and the number of nearby residents included whether they lived there prior to the opening of the freeway (California Legislative Information, Article 6). Pursuant to Section 215.6, a city or county can accelerate the priority of a noise attenuation project by contributing at least 33 percent of the estimated cost of a soundwall project (California Legislative Information, Article 6).

ASSEMBLY BILL 1307

On September 7, 2023, Governor Newsom signed into law AB 1307, urgency legislation which took effect immediately and added to the Public Resources Code a new section (Section 21085), which reads: "For purposes of this division, for residential projects, the effects of noise generated by project occupants and their guests on human beings is not a significant effect on the environment" (California Legislative Information 2023).

CALIFORNIA DEPARTMENT OF HEALTH SERVICES LAND USE GUIDELINES FOR COMMUNITY NOISE EXPOSURE

The state has published guidance for locating land uses in areas compatible with the existing noise environment (**Table 3.13-12, Community Noise Exposure**) (Governor's Office of Planning and Research 2017). For example, it would normally be acceptable for a single-family residence to be located in an area with an existing noise level of 60 dBA CNEL or less.

TABLE 3.13-12 Community Noise Exposure

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE (DB, LDN OR CNEL)						
	55	60	65	70	75	80	
Residential – Low Density Single-Family, Duplex, Mobile Homes	Light	Light	Light	Light	Light	Light	Light
Residential – Multi-Family	Light	Light	Light	Light	Light	Light	Light
Transient Lodging – Motels Hotels	Light	Light	Light	Light	Light	Light	Light
Schools, Libraries, Churches, Hospitals, Nursing Homes	Light	Light	Light	Light	Light	Light	Light
Auditoriums, Concert Halls, Amphitheaters	Light	Light	Light	Light	Light	Light	Light
Sports Arena, Outdoor Spectator Sports	Light	Light	Light	Light	Light	Light	Light
Playgrounds, Neighborhood Parks	Light	Light	Light	Light	Light	Light	Light
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Light	Light	Light	Light	Light	Light	Light
Office Buildings, Business Commercial and Professional	Light	Light	Light	Light	Light	Light	Light
Industrial, Manufacturing, Utilities, Agriculture	Light	Light	Light	Light	Light	Light	Light

Source: California Office of Planning and Research 2017, Appendix D, Noise Element Guidelines

- Normally Acceptable* – Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.
- Conditionally Acceptable* – New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply system or air conditioning will normally suffice.
- Normally Unacceptable* – New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
- Clearly Unacceptable* – New construction or development should generally not be undertaken.

CALTRANS GUIDANCE

Traffic Noise. Caltrans Project Development Procedures Manual Chapter 30 offers guidance on highway traffic noise abatement criteria (NAC), corresponding to various land use activity categories (Caltrans 2009). However, the NAC in Chapter 30 has been superseded by the Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects (**Table 3.13-13, Activity Categories and Noise Abatement Criteria**) (Caltrans 2020b). Activity categories and related traffic noise impacts are determined based on the actual land use in a given area. The Caltrans Technical Noise Supplement to the Traffic Noise Analysis Protocol provides additional details on noise analysis procedures, practices, and other useful technical background information related to the analysis and reporting of highway and construction noise impacts and abatement (Caltrans 2013). It supplements and expands on concepts and procedures referred to in the Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects.

TABLE 3.13-13 Activity Categories and Noise Abatement Criteria

ACTIVITY CATEGORY	HOURLY A-WEIGHTED SOUND LEVEL, $L_{eq(h)}$ *	EVALUATION LOCATION	DESCRIPTION OF ACTIVITIES
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B**	67	Exterior	Residential.
C**	67	Exterior	Active sport areas, amphitheatres, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.

Source: Caltrans 2020b, Table 1

Table Notes:

* The $L_{eq(h)}$ activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).

** Includes undeveloped lands permitted for this activity category.

Airport Noise. The Caltrans Division of Aeronautics California Airport Land Use Planning Handbook offers guidance on airport planning and developing compatible land use policies (Caltrans 2011). It also provides suggested criteria for the CNEL values commonly used as the limit for acceptable residential noise exposure (**Table 3.13-14, Noise Compatibility Criteria**).

TABLE 3.13-14 Noise Compatibility Criteria

CNEL (DB)	CRITERIA	SUGGESTED APPLICABILITY
65	Set by the FAA and other federal agencies as the level above which residential land uses may be incompatible if not acoustically treated. Established by California state regulations as the maximum normally acceptable noise level for residential and certain other land uses at county-designated noise-problem airports.	Generally not appropriate for most new development. May be acceptable in noisy urban locations and/or in hot climates where most buildings are air conditioned.
60	The contour within which California Building Code (Section 1207.11) requires an acoustical analysis of proposed residential structures, other than detached single-family dwellings. Suggested by the California Governor’s Office of Planning and Research General Plan Guidelines as the maximum “normally acceptable” noise exposure for residential areas. [Note: Individual noise events will occasionally cause significant interference with residential land use activities, particularly outdoor activities, in quiet suburban/rural communities.]	Suitable for new development around most airports. Particularly appropriate in mild climates where windows are often open.
55	Identified by USEPA as the level below which “undue interference with activity and annoyance” will not occur. [Note: Individual noise events will seldom significantly interfere with residential land use activities (e.g., interference with speech). In urban areas, aircraft contribution to this noise level may be less than that of other noise sources.]	Suitable for airports in quiet, rural locations.

Source: Caltrans 2011, Table 4B

Table Note: When setting criteria for a specific airport, other characteristics of the airport and its environs also need to be considered.

Construction Noise. Section 14-8.02, Noise Control, of Caltrans standard specifications provides guidance on preventing construction noise impacts. The specification states:

- Do not exceed 86 dBA at 50 feet from the job site activities from 9 p.m. to 6 a.m.
- Equip an internal combustion engine with the manufacturer recommended muffler. Do not operate an internal combustion engine on the job site without the appropriate muffler.
- If adverse construction noise impacts are anticipated (after compliance with the local applicable noise ordinance), additional abatement measures that would minimize adverse construction noise impacts on the community may be needed. Construction in urban and suburban areas is common (and necessary) and contractors now routinely incorporate Best Management Practices (BMPs) to reduce the temporary noise associated with equipment use including sound walls, mufflers, avoiding simultaneous use of especially noisy equipment, noise dampening shields, enclosure of stationary work as well as proper equipment maintenance. BMPs would be expected to reduce noise levels by 15 dBA or more.

Construction Vibration. The Transportation and Construction Vibration Guidance Manual presents a variety of criteria for vibration impacts based on previously completed studies (Caltrans 2020a). Caltrans recommends that extreme care be taken when sustained pile driving occurs within 7.5 meters (25 feet) of any building and 15 to 30 meters (50 to 100 feet) of a historic building or a building in poor condition.

LOCAL

To identify, appraise, and remedy noise problems in local jurisdictions, each county and city in the SCAG region is required to adopt a noise element as part of its General Plan. Each noise element is required to analyze and quantify current and projected noise levels associated with local noise sources, including, but not limited to, highways and freeways, primary arterials and major local streets, rail operations, air traffic associated with the airports, local industrial plants, and other ground stationary sources that contribute to the community noise environment. Beyond statutory requirements, local jurisdictions are free to adopt their own goals and policies in their noise elements, although most jurisdictions have chosen to adopt noise/land use compatibility guidelines that are similar to those recommended by the state. The overlapping DNL ranges indicate that local conditions (existing noise levels and community attitudes toward dominant noise sources) should be considered in evaluating land use compatibility at specific locations.

In addition to regulating noise through noise element policies, local jurisdictions regulate noise through enforcement of local ordinance standards. These standards generally relate to noisy activities (e.g., use of loudspeakers and construction) and stationary noise sources and facilities (e.g., air conditioning units and industrial activities). Three cities in the SCAG region, Los Angeles, Long Beach, and Port Hueneme, operate port facilities. Noise from the Ports of Los Angeles, Long Beach, and Hueneme are regulated by the noise ordinances and noise elements of the Los Angeles, Long Beach, and Port Hueneme General Plans.

In terms of airport noise, airport operators have addressed local community noise concerns through a variety of methods changes including runway use and flight routing changes, aircraft operational procedure changes, and engine run-up restrictions. These actions generally are subject to approval by the FAA, which has the authority and responsibility to control aircraft noise sources, implement and enforce flight operational procedures, and manage the air traffic control system. Airport operators also consider limitations on airport use, but such restrictions can be overridden by the FAA if it is determined that they unjustly discriminate against any user, impede the federal interest in safety and management of the air navigation system, or unreasonably interfere with interstate commerce. In addition, airport operators have addressed community concerns by retrofitting homes under flight paths to provide additional noise insulation.

Some local jurisdictions regulate vibration through enforcement of local ordinance standards. These standards generally relate to preventing perceptible vibration from being generated past the property line of the source location.

3.13.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to noise if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation or excessive groundborne vibration or groundborne noise levels;

- For a project within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions.

This section evaluates the potential impacts of the proposed Plan on ambient noise levels, identifies mitigation measures for the impacts, and evaluates the residual impacts in accordance with 2023 CEQA Guidelines Appendix G. Noise within the SCAG region was evaluated at the programmatic level of detail, with reference to applicable federal and state noise and vibration impacts guidelines as appropriate, and a review of related literature germane to the SCAG region, as well as a review of the Plan.

Ambient noise levels in the SCAG region vary widely as a function of the physical environment, land use, and density of people. Noise levels for various areas are identified according to the use of the area. Maximum allowable noise levels associated with various sensitive land uses are provided. Exposure of people to noise levels and ground borne vibration from transportation and transit infrastructure varies in relation to noise level at the source, density of the source, distance from the source, and sound modulating or attenuating structures between the source and the receptor.

The methodology for determining the significance of noise and vibration impacts compares the existing conditions (2022) to the conditions in 2050 under the Plan, including implementation of transportation projects and potential development projects for a more compact land use development pattern.

Temporary changes in noise are associated with different phases of construction for projects typically extending over several years. Noise levels vary with construction phase and adjacent sensitive receptors may be affected differently at different times. As noted above, construction noise in urban and suburban areas is common and increasingly necessary to achieve the compact growth pattern identified in Connect SoCal 2024 as well as state and other local plans. For this reason, many communities are moving away from identifying construction noise as significant and instead are tightening their General Plans and noise ordinances and requiring generally applicable environmental protection measures. The analysis in this PEIR considers typical noise levels from different phases of typical construction activities and how such temporary noise levels could affect nearby sensitive receptors.

Permanent increases in operational noise associated with highway traffic is dependent on several variables:

- Traffic volume (the greater the number of vehicles passing through an area within a specified period result in greater noise)
- Vehicle speed (greater speed results in greater noise from tire and aerodynamic noise)
- Vehicle types such as cars, trucks, and motorcycles (different engine and exhaust combinations, different tires, and different aerodynamic profiles result in different noise levels)

- Location of the roadway with respect to sensitive receptors (distance and intervening objects or topography will reduce noise levels).

The noise impacts analysis was based on the Project List for Connect SoCal 2024 (see Project List Technical Report in the Plan) which includes transportation projects and programs, as well as land use development projects consistent with the Forecasted Regional Development Pattern under the Plan. Project types range from projects with substantial ground disturbance such as rail projects, mixed flow lane projects, and grade separation projects, to operations and maintenance projects with minimal ground disturbance such as traffic signal synchronization or lane-restriping projects. The noise impacts analysis also considers impacts from potential development projects constructed to implement the Plan's land use development pattern throughout the six counties and 38,000 square miles of the SCAG region.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

Impact NOI-1 Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan would likely result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, constituting a significant impact. Grading and construction activities would generate temporary increases in noise levels, and operational activities would generate permanent increases in noise levels in excess of standards established in the local general plan or noise ordinance, constituting a significant impact, requiring the consideration of mitigation measures.

As noted above, noise impacts are experienced locally and cannot be quantified at a regional level. Land uses support various noise environments depending on multiple factors. For example, urban environments tend to be louder than suburban environments due to denser, multi-use land use patterns. Urban environments also typically support higher volumes of traffic as well as other transportation modes that generate sound such as trains, light rail, and buses. Suburban environments, where land uses are often more segregated, have more moderate noise levels. Agricultural areas also have a unique noise environment as compared to urban and suburban environments. Agricultural operations require the use of heavy-duty equipment (e.g., mechanized plows, tractors) that produce high noise levels. However, because agricultural areas are sparsely populated, noise generally does not have the

same adverse effect on surrounding land uses and may be protected by right-to-farm regulations or other local land use policies.

CONSTRUCTION

Impacts to sensitive receptors from the construction of projects implemented under the Plan depend on several factors, such as the type of project, adjacent land use, and duration and intensity of the construction activity. Construction noise levels would fluctuate depending on how the construction is phased, the equipment mix, the distance between the construction and the nearest sensitive receptor, and the presence of intervening objects. Furthermore, anticipated development to accommodate the forecast population, household, and employment would take a variety of forms, with a substantial number of housing and jobs focused in PDAs. Because development would be focused in PDAs, residents in and around those areas would be subject to increased frequency of construction noise.

OPERATIONS

Impacts to sensitive receptors resulting from increases in traffic due to implementation of the Plan would depend on several factors, such as the type of project and adjacent land use. Operational noise levels would fluctuate depending on traffic volume, vehicle speed, vehicle mix, location, and distance of the roadway with respect to sensitive receptors, and the presence of intervening objects. A doubling of traffic generally corresponds to a 3 dB increase in noise level, which is only just perceptible to the human ear. Most major facilities do not have the capacity to allow a doubling of traffic; therefore, this increase is generally not expected.

Similar to construction impacts, anticipated development projects would take a variety of forms, with the majority focused in and around PDAs. As traffic volumes increase, the duration of the peak hour noise levels would extend. Operation of transportation and transit projects in these PDAs would have the potential to increase noise levels in excess of standards established in county and city general plans and noise ordinances.

Heavy rail would increase the number of passenger and freight trains in the region. Because of the number of existing passenger and freight trains that use the existing heavy rail tracks, additional trains are not expected to increase daily noise (CNEL) along any given track by more than 3 dB relative to baseline conditions. Light-rail improvements will include increasing frequency on and making improvements to existing corridors and adding new corridors. In general, the proposed transit improvements along existing corridors would occur in developed urban areas where noise levels are already high from existing sources. In areas that do not currently have light-rail operations, implementation of the Plan could increase noise levels above 65 dB CNEL and increase CNEL by more than 3 dB relative to baseline conditions. Increases in operational mobile source noise from the projected land use pattern and planned transportation improvements would result in new vehicles trips on existing roadways generating increases in noise. In locations where noise would exceed the CNEL threshold of 65 dB following the implementation of the Plan, a significant noise impact would occur.

Land use strategies in the Plan would encourage development in PDAs and other urbanized areas. Urban and suburban areas experience noise from a number of sources associated with living in proximity to other people and among different land uses. Typical community noise sources include small mechanical devices (e.g., lawn mowers, leaf blowers), parks and playgrounds, restaurants and bars, commercial uses, events, and industrial plants. Outdoor spaces such as patios, balconies, yards, and common areas associated with housing projects can also be sources of substantial temporary noise when large groups of people congregate in these areas or when residents engage in activities that produce high noise levels; however, as noted above in Regulatory Framework, pursuant to AB

1307, which was signed by Governor Newsom on September 7, 2023, “for residential projects, the effects of noise generated by project occupants and their guests on human beings is not a significant effect on the environment” (California Legislative Information 2023). Traffic and other transportation-related noise is also a dominant noise source in urban areas. Light rails, passenger trains, and other forms of public transit generate noise from the contact of wheels on railways as well as loud bells that signal to cars, cyclists, and pedestrians of their arrival. Implementation of the Plan is likely to increase the amount of noise experienced in PDAs because of the increased density in these areas as well as from improved transportation infrastructure.

In suburban and rural areas, noise sources are fewer and the addition of new stationary or mobile noise sources could result in an increase in ambient noise. According to SPM data, future 2050 conditions with the Plan would still result in the conversion agricultural and natural lands into developed uses when compared to existing conditions, which has the potential for increased ambient noise in suburban and rural areas.

Because of the nature of noise impacts (noise dissipates with distance), new sources of noise could result in noise levels exceeding applicable noise thresholds for determining significance within a localized area, but those impacts cannot be quantified at a regional level. Therefore, it is determined that implementation of the Plan could result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. As such, this impact is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-LU-1 through SMM-LU-3, SMM-POP-1, and SMM-POP-2.

PROJECT-LEVEL MITIGATION MEASURES

- PMM-NOI-1** In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to reduce ambient noise levels in the vicinity of the project, as applicable and feasible. Such measures may include the following or other comparable measures identified by the Lead Agency:
- a. Install temporary noise barriers during construction between noise sources and noise-sensitive land uses and species.
 - b. Include permanent noise barriers and sound-attenuating features as part of the project design between noise sources and noise-sensitive land uses and species. Barriers could be in the form of outdoor barriers, sound walls, buildings, landscaped berms, dense planting, or earth berms to attenuate noise at adjacent sensitive uses. Sound-attenuating features could be in the form of grade separation, buffer zones, reduced-noise paving materials, and traffic calming measures.
 - c. Schedule construction activities consistent with the allowable hours pursuant to applicable general plan noise element or noise ordinance
 - d. Post procedures and phone numbers at the construction site for notifying the Lead Agency staff, local Police Department, and construction contractor (during regular construction hours

and off-hours), along with permitted construction days and hours, complaint procedures, and who to notify in the event of a problem.

- e. Notify neighbors and occupants within 300 feet of the project construction area at least 30 days in advance of anticipated times when noise levels are expected to exceed limits established in the noise element of the general plan or noise ordinance.
- f. Designate an on-site construction complaint and enforcement manager for the project.
- g. Ensure that construction equipment is properly maintained per manufacturers' specifications and fitted with the best available noise suppression devices (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds silencers, wraps). All intake and exhaust ports on power equipment shall be muffled or shielded.
- h. Use hydraulically or electrically powered tools (e.g., jack hammers, pavement breakers, and rock drills) for project construction to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust should be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves should be used, if such jackets are commercially available, and this could achieve a further reduction of 5 dBA. Quieter procedures should be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.
- i. Where feasible, design projects so that they are depressed below the grade of the existing noise-sensitive receptor, creating an effective barrier between the roadway and sensitive receptors.
- j. Where feasible, improve the acoustical insulation of dwelling units where setbacks and sound barriers do not provide sufficient noise reduction.
- k. Using rubberized asphalt or "quiet pavement" to reduce road noise for new roadway segments, roadways in which widening or other modifications require re-pavement, or normal reconstruction of roadways where re-pavement is planned
- l. Projects that require pile driving or other construction noise above 90 dBA in proximity to sensitive receptors, should reduce potential pier drilling, pile driving and/or other extreme noise generating construction impacts greater than 90 dBA; a set of site-specific noise attenuation measures should be completed under the supervision of a qualified acoustical consultant.
- m. Monitor the effectiveness of noise reduction measures by taking noise measurements and installing adaptive mitigation measures to achieve the standards for ambient noise levels established by the noise element of the general plan or noise ordinance.
- n. Use equipment and trucks with the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds, wherever feasible) for project construction.
- o. Stationary noise sources can and should be located as far from adjacent sensitive receptors and species to the maximum extent feasible and they should be muffled and enclosed within

- temporary sheds, incorporate insulation barriers, or use other measures as determined by the Lead Agency (or other appropriate government agency) to provide equivalent noise reduction.
- p. Use of portable barriers in the vicinity of sensitive receptors during construction.
 - q. Implement noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings (for instance by the use of sound blankets), and implement if such measures are feasible and would noticeably reduce noise impacts.
 - r. Monitor the effectiveness of noise attenuation measures by taking noise measurements.
 - s. Maximize the distance between noise-sensitive land uses and new roadway lanes, roadways, rail lines, transit centers, park-and-ride lots, and other new noise-generating facilities.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to generation of substantial noise increases, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT NOI-2 **Generation of excessive groundborne vibration or groundborne noise levels.**

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan would generate varying levels of vibration and groundborne noise. As noted above, urban environments tend to be louder than suburban environments due to denser, multi-use land use patterns. Urban environments also typically support higher volumes of traffic as well as other transportation modes that generate groundborne vibration and sound such as trains, light rail, and buses. Suburban environments, where land uses are often more segregated, have more moderate groundborne vibration and noise levels. Agricultural operations require the use of heavy-duty equipment (e.g., mechanized plows, tractors) that produce high groundborne vibration and noise levels. However, because agricultural areas are sparsely populated, noise generally does not have the same adverse effect on surrounding land uses and may be protected by right-to-farm regulations or other local land use policies.

Traffic, especially heavy truck traffic, can be a source of vibration and groundborne noise. Rail operations, including freight and light-rail trains, can also be a source of vibration.

CONSTRUCTION

Implementation of the Plan could result in temporary noise and vibration impacts from grading, paving, clearing, landscaping, staging, excavation, earthmoving, and other related construction activities. Such construction activities would require the use of heavy construction equipment (e.g., pile drivers, back hoes, jackhammers) and

vehicles that generate significant amounts of noise and vibration in the immediate vicinity of the source, often resulting in noise and vibration levels substantially higher than existing conditions. Table 3.13-6 and Table 3.13-7 summarize typical construction noise and vibration levels, respectively, for various construction activities.

Noise and vibration impacts from construction activities depend on several factors including the types of surrounding land uses, duration and type of construction activities, distance between source and receptor, and the presence or absence of barriers between source and receptor. Construction impacts are considered temporary and localized in nature, as they are limited to the time during which the project is being constructed and confined to areas adjacent to the construction site. After construction is completed, all construction equipment and vehicles are removed. In urban areas, where most of the development takes place, construction is a frequent occurrence, and although construction can be a nuisance, it may not result in a significant impact. In rural and suburban areas, where ambient noise levels are lower, noise may rise to the level of an impact. However, land uses are also further apart, thereby reducing the potential for conflicts. Further, many local jurisdictions have policies specifically dealing with construction noise including restrictions on hauling and hours of construction.

Implementation of the Plan have the potential to result in construction-related vibration impacts that increase vibration levels above the thresholds identified in Table 3.13-8 and Table 3.13-9; as well as the potential to result in excessive levels of vibration and groundborne noise from increased traffic and congestion, at the local level (see Section 3.17, *Transportation*, for further discussion of how the Plan affects the transportation network). Although construction activities are short-term for individual project sites, they can nonetheless result in substantial increases in ambient noise and vibration levels in the immediate vicinity of each construction site. Construction activities would occur in accordance with applicable city or county standards. Most such standards address acceptable hours of operation, while some standards address allowable noise levels. If sensitive receptors are in the immediate vicinity of construction activities, they could be temporarily adversely affected. Land use strategies that would encourage more dense development near sensitive receptors would result in increased temporary construction noise and vibration for those receptors. Construction activity, and associated groundborne vibration or noise levels, is a routine part of the urban environment. While construction of individual projects is generally considered to have a less-than-significant impact, construction activities are likely to be ongoing throughout the region; therefore, impacts are considered significant, and mitigation is required.

As previously discussed, there are various sensitive receptors such as residences, daycares, schools, libraries, churches, hospitals, nursing homes, natural areas, and parks in the SCAG region that could be affected by construction or operation of Plan projects. As such, impacts are considered significant.

OPERATION

Normal operation of residential, office and commercial, and mixed-use buildings are unlikely to generate substantial vibration or groundborne noise. Industrial and public buildings could generate vibration and groundborne noise during operations that involve the use of machinery or other vibration-inducing equipment. However, the amount of vibration produced is not anticipated to be excessive, as workplace vibration is typically addressed from an occupational health and safety perspective. As with noise, vibration dissipates with distance from the source; therefore, surrounding land uses would likely not be affected. Table 3.13-7 indicates that, even at close distances, vibration levels for most heavy-duty equipment are below 0.1 in/sec.

Traffic, especially heavy truck traffic, can be a source of vibration and groundborne noise. However, such vibration is rarely high enough to cause annoyance to surrounding uses, as vehicles are supported on spring suspensions and pneumatic tires, which reduce the amount of vibration and groundborne noise generated from vehicular

traffic. Rail operations, including freight and light-rail trains, can also be a source of vibration. Under the Plan there would be increases in both heavy rail and light rail. Existing and future growth and development near existing or planned light-rail or heavy-rail lines could result in excessive levels of vibration and groundborne noise as compared to existing conditions.

Impacts associated with transportation strategies such as complete streets and Transportation System Management and Operations (TSMO) would be minimal and they would generally improve overall traffic flow and would not be expected to increase noise or vibration. Land use strategies would encourage compact development which would encourage more people in urbanized areas where vibration impacts would occur. Operation-related vibration would be a source of annoyance to individuals who live or work near new infrastructure associated with heavy duty truck and bus traffic along roadways and train traffic along rail lines. The amplitude of vibration generated by heavy trucks, buses, or trains has the potential to result in structural or cosmetic damage if the route is adjacent or in close proximity to fragile older buildings.

Based on vibration measurements throughout California, Caltrans determined the maximum traffic vibration levels from truck traffic drop below the threshold of perception at a distance of 42.5 meters (140 feet) from the source and that vibration level from truck traffic are unlikely to cause architectural damage to fragile historic buildings unless the building was adjacent or within 5 meters or 17 feet from the source (Caltrans 2002). It is anticipated that operational activities for some projects would result in a significant impact related to the exposure of people to excess groundborne vibration or groundborne noise levels.

Furthermore, Caltrans measured a peak train vibration level of 0.36 in/sec PPV at 3 meters (10 feet) (Caltrans 2002). A vibration level of 0.36 in/sec PPV at 3 meters or 10 feet would fall below the threshold of perception at a distance of 80 meters (263 feet) from the source. It is anticipated that operational activities for some projects would result in a significant impact related to the exposure of people in excess groundborne vibration or groundborne noise levels.

In conclusion, implementation of the Plan could result in the exposure of persons to excessive groundborne vibration or groundborne noise levels. Therefore, this impact is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-LU-1 through SMM-LU-3, SMM-POP-1, and SMM-POP-2.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-NOI-1.

PMM-NOI-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to groundborne vibration. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a. For projects that require pile driving or other construction techniques that result in excessive vibration, such as blasting, determine the potential vibration impacts to the structural integrity of the adjacent buildings within 50 feet of pile driving locations.

- b. For projects that require pile driving or other construction techniques that result in excessive vibration, such as blasting, determine the threshold levels of vibration and cracking that could damage adjacent historic or other structure, and design means and construction methods to not exceed the thresholds.
- c. For projects where pile driving would be necessary for construction due to geological conditions, utilize quiet pile driving techniques such as predrilling the piles to the maximum feasible depth, where feasible. Predrilling pile holes will reduce the number of blows required to completely seat the pile and will concentrate the pile driving activity closer to the ground where pile driving noise can be shielded more effectively by a noise barrier/curtain and reduce the vibration occurrences and magnitude.
- d. Perform construction activities within permitted hours in accordance with local jurisdiction regulation.
- e. Properly maintain construction equipment and outfit construction equipment with the best available noise suppression devices (e.g., mufflers, silences, wraps).

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to generation of groundborne vibration and noise, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT NOI-3 For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan could result in exposure of persons to or generation of significant noise levels from aircrafts and other airport activity (including ground transportation) constituting a significant impact.

The SCAG region contains an expansive multiple airport system with eight commercial airports, seven government/military fields, and more than 30 reliever and general aviation airports. California's Airport Noise Standards identify a noise exposure level of CNEL 65 dB as the noise impact boundary around airports. Airport proprietors are required to ensure all land uses are compatible with the aircraft noise environment or secure a variance from the California Department of Transportation.

SCAG has no authority over airport development but prepares an Aviation and Airport Ground Access Technical Report as part of development of the Plan each cycle which includes aviation planning information to facilitate ground transportation access planning. Development authority of airports rests with each airport (i.e., airport sponsors retain authority over planning and development decisions) and the FAA, which makes airport funding decisions based on national priorities. Moreover, airports are not required to incorporate metropolitan planning organization (MPO) planning recommendations into their capital plans, and FAA funding decisions are not necessarily tied to MPO RTP recommendations.

Despite some downturns, air passenger traffic in the region has increased at a steady rate over the past two decades, with a particularly vigorous growth rate in recent years up until the COVID-19 pandemic. According to the Connect SoCal 2024 Aviation and Ground Access Technical Report, while the air passenger growth from 88.5 million annual passengers (MAP) in 2000 to 116.53 MAP in 2019 appears relatively modest at 1.7 percent annual growth, the overall growth during this nineteen-year period reflects downturns that occurred following 9/11 and the Great Recession. After starting off the century at 88.5 MAP, air passenger travel experienced a decline following 9/11 going from 81.9 MAP in 2001 to 77.9 MAP in 2002. Air travel increased again until the Great Recession in 2006, which saw air travel demand go down as low as 79.1 MAP in 2009. However, following the dips in 2002 and 2009, air travel in the region has grown at a steady rate, with a noticeable increase following 2012. Post-Great Recession, the increase in air passenger traffic had been robust until the COVID-19 pandemic. The region saw an increase from 85.8 MAP in 2012 to 116.53 MAP in 2019, an increase of 36 percent or 5.12 percent per year growth, making the SCAG region one of the fastest growing for passenger traffic when compared to other metropolitan regions, such as New York/New Jersey and Washington DC. Overall, the SCAG region has been one of the most active in terms of air passenger traffic, as well as annual air passenger demand growth. After hitting a historic low in passenger demand of 39.4 MAP in 2020 due to the COVID-19 pandemic, the SCAG region recovered dramatically by 2020 at 95.15 MAP (SCAG 2023).

As noted above, SCAG does not have any regulatory, developmental, operational, or planning authority over the airports and airport operations. Rather, SCAG is primarily a regional surface transportation planning agency that maintains a list of airport ground access projects and a consultative relationship with the airports. Therefore, SCAG is focused on air and passenger cargo activity from the perspective of how transportation access in the vicinity of airports affects the region's roads, highways, and transit system.

The Connect SoCal 2024 Aviation and Airport Ground Access Technical Report references a comprehensive review of various forecasts for aviation growth in the SCAG region (SCAG 2023), including the FAA Terminal Area Forecast (TAF), FAA Aerospace Forecast, and passenger and cargo forecasts provided to SCAG by the airports:

- Regional air passenger transportation is anticipated to grow by an average of 1.9 percent annually; from 116.53 MAP in 2019 to 182.44 MAP in 2050, according to the passenger forecasts provided to SCAG by the airports.
- Regional air cargo transportation is anticipated to grow by an average of 3.2 percent annually, from 3.53 million tons in 2019 to 11.41 million tons in 2050, according to the cargo forecasts provided to SCAG by the airports.
- Total regional aircraft operations are not anticipated to grow as fast as passenger and/or cargo growth. Regional aircraft operations are anticipated to grow by an average of 0.47 percent annually, from 3.79 million operations in 2019 to 4.76 million operations in 2050, according to the FAA TAF.

LAX is the only regional large-hub primary airport, and the operational data listed for each regional airport indicates most regional commercial air carrier operations are associated with LAX. Recent statistics show that while passenger traffic increased by approximately 3.5 percent in 2019 from the prior year, aircraft operations decreased by approximately 2.3 percent. The Los Angeles World Airports department of the City of Los Angeles is currently constructing an automated people mover (APM) electric train to reduce ground traffic congestion, accommodate future operational growth, and provide a direct rail connection to Los Angeles and adjacent cities (Los Angeles World Airports 2023). The APM is planned to open for passenger services in 2023, and APM operation will reduce ground traffic and could incrementally reduce associated ground traffic noise.

An Aviation Noise Technical Report was also prepared as part of this 2024 PEIR to specifically assess impacts from aviation noise. The full report is provided in **Appendix F, Aviation Noise Technical Report**, of this 2024 PEIR.

As noted above, the aircraft operations growth forecast is significantly smaller than the air passenger and air cargo percentages. This is anticipated because newer aircraft carry a higher volume of passengers and carriers are running at a higher load factor than in the past. When the airlines carry more passengers per flight, the flights are more profitable and fewer flights are needed to carry the same volume of passengers to a specific location. This allows the airlines to schedule some of these flights to other locations and/or reduce their airport operations.

The noise from airports is directly related to the number of aircraft operations as well as the size, aircraft type, and number and type of engines, with additional contributions from other airport activities and ground transportation (noise from ground transportation is considered as part of the overall transportation projects in the Plan).

In general, if the mix of aircraft remains constant, the aviation noise contours grow larger or shrink smaller as the operations increase or decrease. Noise levels do not increase algebraically as the noise sources increase but increase in a logarithmic fashion. For example, two noise sources each emitting a noise level of 60 dB add together to produce noise of 63 dB, not 120 dB. Doubling the number of noise sources increases the overall noise level by 3 dB and doubling the number of aircraft operations would also increase the overall airport noise level by 3 dB and expand the area inside the noise contours, assuming all other factors such as aircraft type, engines, flight tracks, etc., remain the same.

Considering the growth in airport operations from 3.79 million operations in 2019 to 4.76 million operations in 2050, if all aircraft types and operational characteristics were to remain equal, the forecasted increase in noise would equate to 1.0 dB. However, this average increase in aircraft operations would not occur at all airports, as different airports will experience different changes and noise contours may grow or shrink independently. Airport noise levels are expected to increase at the busiest airports such as LAX, ONT, PSP, and BUR, while noise levels at airports with noise and/or operations constraints would not be expected to increase as much. The details needed to model airport noise level changes over the forecast period are not available to provide specific changes. Additionally, airports across the nation have received an increase in noise complaints since implementation in 2015 of FAA's NextGen program to modernize the nation's air transportation system (FAA 2019a). One aspect of NextGen utilizes satellite navigation that precisely direct aircraft flight tracks for more efficient performance, reducing fuel costs and associated carbon emissions, and to increase overall flight capacity (FAA 2019b). Aircraft flight track changes in some cases moved flights over areas that previously did not experience overflights or concentrated aircraft over areas that already experienced overflights, and airport noise complaints increased (Aratani 2016). As the FAA and airports such as LAX and BUR (Carpio 2019) wrestle with the contending issues of an efficient airspace and noise complaints, it is unclear whether aircraft flight tracks will remain constant, further complicating the details needed for forecasting airport noise level changes over the lifetime of the Plan.

Technological changes also play a role in understanding airport noise impacts. The aircraft industry continues to develop aircraft with higher capacity, lower fuel consumption, and lower carbon emissions, but as it does, the industry must also comply with FAA and international aircraft compliance requirements regarding noise. There are currently two major airline industry trends that will affect the future fleet operated at the region's airports. The first is the phase out of some regional jet aircraft in favor of larger mainline narrowbody aircraft flying shorter routes at a higher load factor. The second is the transition from older, louder narrowbody aircraft to quieter, more fuel-efficient aircraft. Aircraft are classified into various Stages with respect to noise controls, with current Stage 3 and 4 aircraft operating quieter than previously used Stage 2 aircraft. Stage 3 aircraft measure between 7 and 20 effective perceived noise level, in decibels (EPNdB) quieter than Stage 2 aircraft, while Stage 4 aircraft are an additional 10 EPNdB quieter than Stage 3 aircraft. Stage 2 aircraft no longer fly in the U.S., with some exceptions for lighter weight aircraft, taking the noisiest aircraft out of service. As airlines replace older and noisier Stage 3 aircraft with quieter Stage 4 aircraft, the aircraft fleet becomes quieter. As a recent example, American Airlines retired the last of its Stage 3 compliant McDonnell Douglas MD-80 aircraft in September 2019 and looks to replace the aircraft with more fuel-efficient aircraft with lower maintenance costs (Biggar 2019). Even as newer aircraft have more powerful engines, the requirements to comply with the quieter Stage 4 noise levels will result in a quieter fleet overall. In 2018, the FAA adopted regulations requiring newly designed aircraft to meet even quieter Stage 5 requirements with a reduction of 7 EPNdB (FAA 2017). Stage 5 is the current FAA requirement for new jet and large turboprop aircraft, which took effect December 31, 2020 (FAA 2023). Therefore, newly developed commercial aircraft entering service in future years will be generally quieter than aircraft currently in service today.

It is possible that in the long term, as aircraft operations grow over the next 25 years, the lower noise levels of aircraft will offset the increased operations to maintain or even reduce the aircraft noise contour footprints around airports, as this has been the general trend in aviation noise over the previous 40 years. It may also be possible that the growth in operations at some airports may overtake the trend toward a quieter aircraft fleet and cause aircraft noise and the noise contours to increase.

In addition, most major public airports have an airport land use plan that provides guidance on safety and land use in adjacent areas. State law mandates the creation of an Airport Land Use Compatibility Plan. The Airport Land Use Commission (ALUC) coordinates planning for areas that surround public use airports. The ALUC is tasked with preparing airport land use plans to protect the public by minimizing their exposure to excessive noise and safety hazards within these areas.

Furthermore, the development of airport land use plans is guided by three federal regulations and two state codes:

- Title 14 CFR Part 36 establishes maximum acceptable noise levels for specific aircraft types.
- Title 14 CFR Part 150, provides guidance for measuring noise at airports and surrounding areas, determining exposure of individuals to noise from the operations of an airport, identifying land uses that are normally compatible, and preparing and executing noise compatibility planning and implementation programs.
- As part of Title 24 CFR Part 51, Subpart B, the HUD exterior noise regulations state that noise levels of 65 dBA DNL or less are acceptable for residential land uses and noise levels exceeding 75 dBA DNL are unacceptable.
- California Government Code Section 65302 specifies that noise contours be shown for all facilities related to airport operations and be stated in terms of CNEL or L_{dn} . These noise contours are intended to guide how patterns of land uses are established in the land use element in order to minimize the exposure of community residents to excessive noise.

- Title 21 CCR Section 5000 et seq., identifies a noise exposure level of CNEL 65 dB as the noise impact boundary around airports. Within this noise impact boundary, airport proprietors are required to ensure that all land uses are compatible with the aircraft noise environment or the airport proprietor must secure a variance from Caltrans.

Additionally, each county and city in the SCAG region is required to adopt safety and noise elements as part of their General Plans. It is expected that local jurisdictions would conduct environmental review for projects that are within or near sensitive airport zones and are expected to implement best management practices and mitigation measures on a project-by-project basis, to minimize potential noise risks associated with air traffic.

Nevertheless, due to the regional scale of aviation operations and because the noise profiles of future aircraft types and their engines are unknown, as is the timeframe for phasing out older aircraft and replacing them with newer aircraft, impacts cannot be accurately determined at this time. Conservatively, it is assumed sensitive receptors may experience greater noise impacts than at present in the vicinity of airports. As a result, implementation of the Plan has the potential to expose people to excessive aviation-related noise; therefore, this impact is considered significant, and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-HAZ-2.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-NOI-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to aircraft noise, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprising policies and strategies, a regional growth forecast and land use pattern, and individual transportation projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to noise and vibration, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

3.13.4 SOURCES

- Alameda Corridor Transportation Authority. 2019. *Alameda Corridor Fact Sheet*. 2019. http://www.acta.org/projects/projects_completed_alameda_factsheet.asp. Accessed July 20, 2023.
- Amtrak. 2019. California Train Routes. 2019. <http://www.amtrak.com/california-train-routes>. Accessed July 20, 2023.
- Aratani, L. 2016. "Advances in airport technology mean sleepless nights for some." *Washington Post*. March 4, 2016. https://www.washingtonpost.com/local/trafficandcommuting/advances-in-airport-technology-mean-sleepless-nights-for-some/2016/03/04/7b8eb936-e098-11e5-9c36-e1902f6b6571_story.html. Accessed July 20, 2023.
- Biggar, D. 2019. "American Airlines Retires the Last of Its Iconic MD-80 Jets." NBC San Diego. September 16, 2019. <https://www.nbcsandiego.com/news/national-international/american-airlines-retires-the-last-of-its-iconic-md-80-jets/1965375/>. Accessed July 20, 2023.
- California Department of Consumer Affairs. 2014. *State of California Laws and Regulations Pertaining to Automotive Repair Dealers, Smog Check Stations and Technicians, Official Lamp and Brake Adjusting Stations and Adjusters*. Section 27204. https://www.dca.ca.gov/publications/02_03_annrpt.pdf.
- California Department of Transportation (Caltrans). 2009. *Project Development Procedures Manual*, Chapter 30 – Highway Traffic Noise Abatement. June 2009.
- Caltrans. 2011. *California Airport Land Use Planning Handbook*. Division of Aeronautics. October 2011.
- Caltrans. 2013. *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. Division of Environmental Analysis. Sacramento, CA.
- Caltrans. 2019. Airport Noise Program. <https://dot.ca.gov/programs/aeronautics/airport-noise-program>. Accessed July 20, 2023.
- Caltrans. 2020a. *Transportation and Construction Vibration Guidance Manual*. Division of Environmental Analysis.
- Caltrans. 2020b. *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects*. Division of Environmental Analysis.
- California Legislative Information. 1961. Chapter 2, Rules and Regulations [17920–17928], Section 17922.6. https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=17922.6&lawCode=HSC. Accessed July 20, 2023.
- California Legislative Information. 1965. Article 5, Authority for and Scope of General Plans [65300–65303.4], Section 65302. https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=GOV§ionNum=65302. Accessed July 20, 2023.
- California Legislative Information. 1975. Article 2.5, Vehicle Code Noise Limits [27200–27207]. https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=VEH&division=12.&title=&part=&chapter=5.&article=2.5. Accessed July 21, 2023.
- California Legislative Information. 1975. Division 28, Noise Control Act, 46000–46080. https://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=HSC&division=28.&title=&part=&chapter=&article=, accessed July 20, 2023.

- California Legislative Information. 1986. Article 6, Freeway Noise Attenuation [215.5–216.5], Section 216. https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=SHC§ionNum=216. Accessed July 20, 2023.
- California Legislative Information. 2023. Assembly Bill No. 1307. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202320240AB1307. Accessed September 19, 2023.
- Carpio, A.C. "Hollywood Burbank Airport noise rattles residents, who want flights spread over wider area." *Los Angeles Times*. September 16, 2019. <https://www.latimes.com/california/story/2019-09-16/hollywood-burbank-airport-noise-rattles-residents-who-want-flights-spread-over-wider-area>. Accessed July 20, 2023.
- Code of Federal Regulations. Title 14, Aeronautics and Space, Parts 1 to 59. 2018. <https://www.govinfo.gov/content/pkg/CFR-2018-title14-vol1/pdf/CFR-2018-title14-vol1.pdf>.
- Code of Federal Regulations. Title 14, Aeronautics and Space, Parts 110 to 199. 2018. <https://www.govinfo.gov/content/pkg/CFR-2018-title14-vol3/pdf/CFR-2018-title14-vol3.pdf>.
- Code of Federal Regulations. Title 23, Highways. 2018. <https://www.govinfo.gov/content/pkg/CFR-2018-title23-vol1/pdf/CFR-2018-title23-vol1.pdf>.
- Code of Federal Regulation. Title 24, Housing and Urban Development, Parts 0 to 199. 2018. <https://www.govinfo.gov/content/pkg/CFR-2018-title24-vol1/pdf/CFR-2018-title24-vol1.pdf>.
- Code of Federal Regulations. 2023. Title 14, Part 36 - Noise Standards: Aircraft Type And Airworthiness Certification. <https://www.ecfr.gov/current/title-14/chapter-I/subchapter-C/part-36>. Accessed July 28, 2023.
- Code of Federal Regulations. Title 40, Protection of the Environment, Parts 190 to 259. 2018. <https://www.govinfo.gov/content/pkg/CFR-2018-title40-vol27/pdf/CFR-2018-title40-vol27.pdf>.
- Code of Federal Regulations. Title 40, Protection of the Environment, Volume 27. 2018. <https://www.govinfo.gov/content/pkg/CFR-2018-title40-vol27/pdf/CFR-2018-title40-vol27.pdf>.
- Code of Federal Regulations. Title 49, Transportation, Parts 200 to 299. 2018. <https://www.govinfo.gov/content/pkg/CFR-2018-title49-vol4/pdf/CFR-2018-title49-vol4.pdf>.
- Cowan, J.P. 1993. *Handbook of Environmental Acoustics*. Hoboken, NJ: John Wiley and Sons.
- Federal Aviation Administration (FAA). 2005. Stage 4 Airplane Noise Standards. July 5, 2005. <https://www.federalregister.gov/documents/2005/07/05/05-13076/stage-4-aircraft-noise-standards>. Accessed July 13, 2023.
- FAA. 2007. *Environmental Desk Reference for Airport Actions*. Chapter 17, Noise. Washington, DC. October 2007.
- FAA. 2017. Stage 5 Airplane Noise Standards. October 4, 2017. <https://www.federalregister.gov/documents/2017/10/04/2017-21092/stage-5-airplane-noise-standards>. Accessed July 20, 2023.
- FAA. 2019a. How NextGen works. 2019. https://www.faa.gov/nextgen/how_nextgen_works/. Accessed July 20, 2023.
- FAA. 2019b. Next Generation Air Transportation System (NextGen). 2019. <https://www.faa.gov/nextgen>. Accessed July 20, 2023.
- FAA. 2020. 1050.1 Desk References, Version 2, pages 11-2, February 2020. https://www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/faq_nepa_order/desk_ref/media/desk-ref.pdf.

- FAA. 2023. [Aircraft Noise Levels & Stages](https://www.faa.gov/noise/levels). <https://www.faa.gov/noise/levels>. Accessed June 22, 2023.
- Federal Highway Administration (FHWA). *FHWA Highway Construction Noise Handbook*. 2006.
- Federal Interagency Committee on Noise. *Federal Agency Review of Selected Airport Noise Analysis Issues*. August 1992. Washington, DC.
- Federal Railroad Administration. 2012. *High-Speed Ground Transportation Noise and Vibration Impact Assessment. Final Report*. Washington, DC. September 2012.
- Federal Transit Administration (FTA). *Transit Noise and Vibration Assessment*. 2006.
- FTA. 2018. Office of Planning and Environment. *Transit Noise and Vibration Impact Assessment Manual*. Washington, DC. September 2018.
- Government Publishing Office. *Electronic Code of Federal Regulations*. Section 202.20, Standards for highway operations. 2019. https://www.ecfr.gov/cgi-bin/text-idx?SID=253c20b841de78b34cfd69afe316a6f&mc=true&node=se40.27.202_120&rgn=div8. Accessed July 20, 2023.
- Government Publishing Office. 40 CFR 205, Subpart B, Medium and Heavy Trucks. <https://www.govinfo.gov/content/pkg/CFR-2012-title40-vol26/pdf/CFR-2012-title40-vol26-part205-subpartB.pdf>.
- Governor's Office of Planning and Research. *State of California 2017 General Plan Guidelines*. 2017.
- Los Angeles County Metropolitan Transportation Authority (Metro). 2023. *Facts at a Glance*. <https://www.metro.net/news/facts-glance/>. Accessed July 13, 2023.
- Los Angeles World Airports. 2023. Automated People Mover. <https://www.lawa.org/en/connectinglax/automated-people-mover>. Accessed July 20, 2023.
- Metrolink. 2019. Experience Metrolink's History. <https://www.metrolinktrains.com/about/agency/history-of-metrolink/>. Accessed July 20, 2023.
- Naples Airport Authority (NAA). 2023. Naples Airport Noise Program Chronology. <https://www.flynaples.com/noise-program-milestones/>. Accessed August 24, 2023.
- Nelson, J.T., and H.J. Saurenman. 1983. *State-of-the-Art Review: Prediction and Control of Ground-Borne Noise and Vibration from Rail Transit Trains*. U.S. Department of Transportation, Urban Mass Transportation Administration, Report Number UMTA-MA-06-0049-83-4, DOT-TSC-UMTA-83-3.
- Port of Hueneme. 2019. *Comprehensive Annual Financial Report: Fiscal Year Ended June 30, 2019*. November 2019.
- Port of Los Angeles. 2019. *Facts & Figures*. <https://kentico.portoflosangeles.org/getmedia/a43d3038-7713-4ebd-8c6a-dc72195a65f1/2019-facts-figures>. Accessed July 20, 2023.
- Southern California Association of Governments (SCAG). 2008. SCAG Commercial Airport System Map. July 2008. https://scag.ca.gov/sites/main/files/file-attachments/commercialairport_2008.pdf?1603480655.
- SCAG. 2012. *On the Move: Southern California Delivers the Goods. Summary Report*. December 2012.
- SCAG. 2019. *Connect SoCal Program Draft Environmental Impact Report*. Section 3.13, Noise. <https://scag.ca.gov/certified-2020-peir>. Accessed August 4, 2023.
- SCAG. 2023. *Connect SoCal 2024 Aviation and Airport Ground Access*. Draft Technical Report. November 2, 2023.

The Harbor Department, an Enterprise Fund of the City of Long Beach, California, 2019. *Comprehensive Annual Financial Report for the Fiscal Year Ended September 30, 2019*.

U.S. Environmental Protection Agency (USEPA). 1974. *Information on Levels of Environmental Noise Requisite to Protect Public Health with an Adequate Margin of Safety*.

<https://nepis.epa.gov/Exe/ZyPDF.cgi/2000L3LN.PDF?Dockey=2000L3LN.PDF>.

USEPA. 1978. *Noise: A Health Problem*. Washington, DC.

USEPA. 2022. Summary of the Noise Control Act, 42 U.S.C Section 4901 et seq. (1972). 2022.

INTENTIONALLY BLANK

3.14 POPULATION AND HOUSING

This section of the 2024 PEIR describes the existing conditions related to population, housing, and employment within the SCAG region, sets forth the regulatory framework that addresses population and housing, and analyzes the significance of the potential population and housing impacts that could occur from development of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures, as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible.

3.14.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for population, housing, and employment follow:

- *Employment*: Paid employment consists of full- and part-time employees, including salaried officers and executives of corporations, who were on the payroll in the pay period. Included are employees on sick leave, holidays, and vacations; not included are proprietors and partners of unincorporated businesses.
- *Household*: A household consists of all the people who occupy a housing unit. A household includes the related family members and all the unrelated people, if any, such as lodgers, foster children, wards, or employees who share the housing unit. A person living alone in a housing unit, or a group of unrelated people sharing a housing unit such as partners or roomers, is also counted as a household.
- *Householder*: The householder refers to the person (or one of the people) in whose name the housing unit is owned or rented (maintained) or, if there is no such person, any adult member, excluding roomers, boarders, or paid employees. If the house is owned or rented jointly the householder may be either party. The person designated as the householder is the "reference person" to whom the relationship of all other household members, if any, is recorded.
- *Housing*: As used in this analysis, housing is data available from the U.S. Census for the SCAG region for the period of 2000 through 2035. Housing is a general term used to describe multiple housing units.
- *Housing unit*: A house, an apartment or other group of rooms, or a single room are regarded as housing units when occupied or intended for occupancy as separate living quarters. Different jurisdictions have slightly different definitions of what constitutes a housing unit.
- *Population*: As used in this analysis, population is data available from the U.S. Census for the SCAG region for the period of 1900 through 2019, with population projections available from SCAG in 2023 for the projected population growth through 2050.
- *Regional Housing Needs Assessment (RHNA)*: As discussed in more detail in the Regulatory Background, the RHNA quantifies the existing and future housing need within each jurisdiction of the SCAG region based on household growth projections, access to transit, and access to jobs, with a consideration for disadvantaged communities. Communities then address this need through identifying adequate sites to accommodate their RHNA allocation in the housing elements of their General Plans.

EXISTING POPULATION, HOUSING, AND EMPLOYMENT

As noted in Chapter 1, *Introduction*, and Section 3.0, *Introduction to the Analysis*, of this 2024 PEIR, the discussion presented below regarding the environmental setting for this 2024 PEIR is generally focused on conditions and corresponding data from 2019, which is also the base year in the Plan, and reflects baseline conditions prior to the onset of the effects of the COVID 19 pandemic in early 2020. As such, in order to provide a reliable comparison and consistent evaluation of impacts of the Plan, a 2019 baseline condition is utilized in this section. Where appropriate, however, more recent data is provided and discussion of more recent conditions is presented for context.

POPULATION

The six-county SCAG region encompasses 38,000 square miles in area (almost 25 million acres) and is home to approximately 18.8 million people as of 2019, making it the largest and most diverse region in the U.S (U.S. Census Bureau 2023). Approximately six percent of the national population lives in the SCAG region, and for over half a century the region has been home to approximately half the population of California. At the turn of the 20th Century, the SCAG region comprised less than one percent of the U.S. population and less than 30 percent of the state population. By 1960, the region grew to represent nearly 5 percent of the national population (SCAG 2023a). Historically, population within the SCAG region was heavily influenced by net migration, or the difference between people coming into an area (immigrating) and the people leaving an area (emigrating) as opposed to the increase of births over deaths. However, since about 2000, net migration has slowed and has resulted in slower population growth across the SCAG region. The population growth within the SCAG region is similar to that of California and the U.S. as a whole.

As shown below in **Table 3.14-1, Population Growth in the SCAG Region (2000–2019 for Incorporated Cities and Unincorporated Areas)**, existing populations have increased in every county within the SCAG region from 2000 to 2019. However, while increasing in population, the SCAG region’s overall growth rate is slowing. The change is largely attributed to four key factors: (1) lower birth rates (fewer children), (2) lower immigration rates (fewer immigrants), (3) aging population (fewer at childbearing age), and (4) high housing costs (lack of housing) (SCAG 2023a).

TABLE 3.14-1 Population Growth in the SCAG Region (2000–2019 for Incorporated Cities and Unincorporated Areas)

COUNTY	POPULATION 2000 ¹	POPULATION 2010 ²	POPULATION 2019 ¹	GROWTH RATE 2000-2010	GROWTH RATE (2010-2019)
Imperial	142,000	175,000	181,000	0.226	0.037
Los Angeles	9,519,000	9,819,000	10,046,000	0.031	0.023
Orange	2,846,000	3,010,000	3,191,000	0.058	0.060
Riverside	1,545,000	2,190,000	2,386,000	0.417	0.093
San Bernardino	1,709,000	2,035,000	2,175,000	0.191	0.069
Ventura	753,000	823,000	846,000	0.093	0.028
SCAG Region	16,514,000	18,052,000	18,827,000	0.093	0.043

Sources: 1. SCAG 2023a
2. SCAG 2021a

Table Note: Numbers are rounded to the nearest thousand.

From the 1980s into the 2000s, the region was in a housing and economic boom, which led to increased immigration and household size, and a surge in population growth in all six SCAG counties. When the market slowed, beginning in 2006, growth slowed as well, and from the years 2010–2019, Imperial, Riverside, San Bernardino, and Ventura counties all showed a significant decrease in population growth, with Los Angeles County experiencing a modest decrease in population growth during that time period. During the same period, Orange County maintained a similar growth rate for the years 2010–2019 compared to the years 2000–2010. This is not surprising, as Orange County contains coastal areas and metropolitan cities, which makes the county an attractive destination regardless of job and housing creation.

HOUSING

As shown in **Table 3.14-2, Households in the SCAG Region**, there were approximately 6.2 million households in the SCAG region in 2019, an increase from 2010. More than half of the households in the region are located in Los Angeles County. Unfortunately, California, like many other places in the U.S., is experiencing a housing crisis. At a fundamental level, there is simply not enough housing for everyone who wants to live in the state.

TABLE 3.14-2 Households in the SCAG Region

COUNTY	NUMBER OF HOUSEHOLDS [2010] ¹	NUMBER OF HOUSEHOLDS [2019] ²
Imperial	49,000	52,000
Los Angeles	3,239,000	3,393,000
Orange	990,000	1,069,000
Riverside	686,000	744,000
San Bernardino	612,000	657,000
Ventura	267,000	278,000
SCAG	5,843,000	6,193,000

Sources: 1. SCAG 2021a
2. SCAG 2023a

Table Note: Numbers are rounded to the nearest thousand.

HOUSEHOLD INCOME

Median household income in the SCAG region in 2019 varied widely, from \$47,622 in Imperial County to \$90,234 in Orange County. The county with the second highest median income is Ventura County (\$88,131). Across the SCAG region, the average income was \$70,733. Homeownership rates also vary, from a low of 45.8 percent in Los Angeles County to a high of 66.3 percent in Riverside County. The average homeownership rate in the SCAG region is 58.5 percent (SCAG 2021a).

HOUSEHOLD SIZE

Household size in the SCAG region (incorporated cities) decreased between 2000 and 2019, from 3.00 persons per household to 2.99 persons per household, or a decrease of the equivalent of an average of 0.01 persons per household (**Table 3.14-3, Household Size in the SCAG Region [Persons]**). In descending order, Riverside, San Bernardino, and Imperial Counties' household size grew, while Ventura, Los Angeles, and Orange, Counties' household size declined between 2000 and 2019.

TABLE 3.14-3 Household Size in the SCAG Region (Persons)

COUNTY	2000 ¹	2019 ²	2000-2019 CHANGE
Imperial	3.32	3.34	0.02
Los Angeles	2.97	2.91	-0.06
Orange	2.99	1.29	-1.70
Riverside	2.99	3.17	0.18
San Bernardino	3.14	3.25	0.11
Ventura	3.04	3.00	-0.04
SCAG Region	3.01	2.99	-0.02

Sources: 1. IPUMS 2023

2. Connect SoCal 2024 base year, based on 2020 decennial Census PL-94 redistricting file and 2019 DOF E-5 estimates.

POVERTY

The U.S. Census Bureau reported 2.3 million people in the SCAG region were living in poverty in 2019, down from 2.9 million people in 2010 (**Table 3.14-4, Individual Poverty Rates in the SCAG Region [1990–2021]**) (U.S. Census Bureau 2019). The average poverty rate in the SCAG region has remained above the state and national averages since 1990. Imperial County has the highest poverty rate, followed by Los Angeles County, and San Bernardino County, which are above the state and national averages, and then Riverside County which has fallen below the state and national averages in recent years. Orange County and Ventura County consistently had poverty rates below state and national averages between 1990 and 2021.

TABLE 3.14-4 Individual Poverty Rates in the SCAG Region (1990–2021)

COUNTY	1990 POVERTY RATE ¹	2000 POVERTY RATE ²	2010 POVERTY RATE ³	2019 POVERTY RATE ⁴	2021 POVERTY RATE ⁵
Imperial	0.238	0.226	0.214	0.251	0.164
Los Angeles	0.151	0.179	0.175	0.134	0.142
Orange	0.085	0.103	0.122	0.094	0.099
Riverside	0.115	0.142	0.163	0.113	0.116
San Bernardino	0.127	0.158	0.180	0.133	0.132
Ventura	0.073	0.092	0.107	0.079	0.088
SCAG Region Average	0.132	0.157	0.163	0.123	0.128
State Average	0.125	0.142	0.158	0.118	0.123

Sources: 1. SCAG 2016

2. Decennial Census DP3 2000

3. U.S. Census Bureau 2019

4. U.S. Census bureau 2020, American Community Survey 1-year estimates, table B17001

5. U.S. Census bureau 2021, American Community Survey 1-year estimates, table S1701

Using U.S. Census Bureau American Community Survey Data, SCAG has identified underserved communities in the SCAG region. See Connect SoCal 2024 Equity Analysis Technical Report, for discussion and analysis of environmental justice communities relative to the Plan. Disadvantaged communities in the SCAG region include census tracts that have been identified by the California Environmental Protection Agency (CalEPA) as Disadvantaged Communities (DACs) based on the requirements set forth in SB 535, which seek to identify areas disproportionately burdened by and vulnerable to multiple sources of pollution. Environmental justice areas of concern include those areas where there are issues of public health, housing, impacts on racial and ethnic minority groups, and environmental impacts.

Note that while socioeconomic issues do not in and of themselves constitute physical environmental impacts, they do have the potential to lead to physical environmental impacts. For example, as gentrification occurs near urban job centers, increased housing costs could outpace income growth leading to households moving toward more affordable suburbs. This would increase commute times, resulting in increases in vehicle miles traveled and air pollution.

EMPLOYMENT

Throughout the SCAG region, jobs are frequently co-located along major transportation intersections and transportation corridors. **Map 3.14-1, Employment Density in the SCAG Region (2019)**, depicts the employment density across the region. Employment trends in Southern California have long followed a “boom and bust” cycle. Much of the 2000s saw a boom of housing development, particularly in the Inland Empire, only to be followed by a bust starting in 2008 which affected employment, particularly in the housing construction and service sectors. In 2019, there were approximately 9.0 million jobs in the SCAG region (**Table 3.14-5, 2019 Employment by County**). Based on available SCAG data (2019), the economy experienced a net increase in jobs, between 2000 and 2019, for every county in the SCAG region (**Table 3.14-6, Employment Growth from 2000 to 2019**). As of 2019, Riverside County saw the largest relative increase in job generation, growing by 62.9 percent (327,099 jobs), followed by San Bernardino with 46.1 percent growth (271,539 jobs). The largest increase in jobs overall occurred in Los Angeles County with 528,313 jobs and in Riverside County with 327,099 jobs. Overall, the SCAG region gained approximately 1,461,038 jobs (or 19.5 percent) between 2000 and 2019.

TABLE 3.14-5 2019 Employment by County

COUNTY	TOTAL COUNTY EMPLOYMENT
Imperial	69,000
Los Angeles	5,031,000
Orange	1,805,000
Riverside	847,000
San Bernardino	860,000
Ventura	363,000
SCAG Region	8,976,000

Source: SCAG 2023a

Table Note: Numbers are rounded to the nearest thousand.

TABLE 3.14-6 Employment Growth for 2000 to 2019

COUNTY	2000 (JOBS) ¹	2019 (JOBS) ²	2000-2019 GROWTH (JOBS)	PERCENT CHANGE (2000-2019)
Imperial	56,000	70,000	14,000	25.00%
Los Angeles	4,504,000	5,032,000	528,000	11.72%
Orange	1,522,000	1,806,000	284,000	18.66%
Riverside	520,000	847,000	327,000	62.88%
San Bernardino	589,000	860,000	271,000	46.01%
Ventura	325,000	363,000	38,000	11.69%
SCAG	7,516,000	8,978,000	1,462,000	19.45%

Sources: 1. CA EDD 2019, Wage and Salary employment plus self-employment, as processed by SCAG.
 2. Based on 2020 decennial Census PL-94 redistricting file and 2019 DOF E-5 estimates.

Table Note: Numbers are rounded to the nearest thousand.

UNEMPLOYMENT

Although unemployment rates declined between 2010 and 2019 for all counties in the SCAG region, rates of unemployment remain slightly above the national and state average (3.5 percent [Bureau of Labor Statistics, 2020] and 3.9 percent [CA EDD 2020], respectively) in Imperial and Los Angeles Counties **Table 3.14-7, Unemployment Rates**). In 2019, Imperial County had the highest unemployment rate in the SCAG region (20.7 percent), while Orange County had the lowest in the SCAG region (2.8 percent, below the national and state averages). In 2019, the average unemployment rate in the SCAG region was 6.6 percent.

TABLE 3.14-7 Unemployment Rates

COUNTY	2000 UNEMPLOYMENT RATE ¹	2010 UNEMPLOYMENT RATE ¹	2019 UNEMPLOYMENT RATE ²
Imperial	17.5%	29.9%	20.7%
Los Angeles	5.4%	12.6%	4.5%
Orange	3.5%	9.5%	2.8%
Riverside	5.4%	14.5%	4.2%
San Bernardino	4.8%	14.2%	3.9%
Ventura	4.5%	10.8%	3.6%
SCAG Region	6.8%	15.3%	6.6%
State Average	4.9%	12.4%	4.1%

Sources: 1. SCAG 2020
 2. CA EDD 2019

GROWTH FORECASTS

In order to develop growth forecasts, SCAG encourages and utilizes the participation and cooperation of all local government partners within the SCAG region. SCAG uses a bottom-up planning process by which all local governments are informed of the Connect SoCal 2024 planning process and have clear and adequate

opportunities to provide input. Growth forecasts and land use updates for development under the Plan have been developed through this bottom-up local input process (see **Table 3.14-8, Population Projections in the SCAG Region (2019, 2020, 2030, 2045, and 2050)**, **Table 3.14-9, Household Projections in the SCAG Region (2019, 2020, 2030, 2045, and 2050)**, and **Table 3.14-10, Employment Projections in the SCAG Region (2019, 2022, 2030, 2045, and 2050)**). For additional details on the SCAG growth forecast and how it was developed see Chapter 2, *Project Description*, and the Demographics & Growth Forecast Technical Report in the Plan. The forecasted change in housing and employment by local jurisdiction in the SCAG region between 2019 and 2050 is illustrated in **Map 3.14-2, Jurisdiction Household Growth 2019–2050**, and **Map 3.14-3, Jurisdiction Employment Growth 2019–2050**, respectively.

TABLE 3.14-8 Population Projections in the SCAG Region (2019, 2020, 2030, 2045, and 2050)

COUNTY NAME	POPULATION 2019	POPULATION 2020	POPULATION 2030	POPULATION 2045	POPULATION 2050	PERCENTAGE INCREASE 2019-2050
Imperial	181,000	180,000	193,000	207,000	210,000	16.0%
Los Angeles	10,046,000	10,018,000	10,214,000	10,760,000	10,767,000	7.2%
Orange	3,191,000	3,188,000	3,247,000	3,401,000	3,439,000	7.8%
Riverside	2,386,000	2,418,000	2,674,000	2,927,000	2,992,000	25.4%
San Bernardino	2,175,000	2,182,000	2,298,000	2,534,000	2,623,000	20.6%
Ventura	849,000	844,000	849,000	858,000	852,000	0.4%
SCAG Region	18,827,000	18,830,000	19,476,000	20,687,000	20,882,000	10.9%

Source: SCAG 2023a, Table 12: Region and county forecast of population, households, and employment

Table Note: Numbers are rounded to the nearest thousand.

TABLE 3.14-9 Household Projections in the SCAG Region (2019, 2020, 2030, 2045, and 2050)

COUNTY NAME	HOUSEHOLDS 2019	HOUSEHOLDS 2020	HOUSEHOLDS 2030	HOUSEHOLDS 2045	HOUSEHOLDS 2050	PERCENTAGE INCREASE 2019-2050
Imperial	52,000	52,000	61,000	70,000	72,000	38.5%
Los Angeles	3,393,000	3,423,000	3,784,000	4,117,000	4,139,000	22.0%
Orange	1,069,000	1,080,000	1,164,000	1,239,000	1,253,000	17.2%
Riverside	744,000	763,000	903,000	1,033,000	1,062,000	42.7%
San Bernardino	657,000	668,000	786,000	918,000	953,000	45.1%
Ventura	278,000	280,000	307,000	321,000	318,000	14.4%
SCAG Region	6,193,000	6,265,000	7,006,000	7,699,000	7,798,000	25.9%

Source: SCAG 2023a, Table 12: Region and county forecast of population, households, and employment

Table Note: Numbers are rounded to the nearest thousand.

TABLE 3.14-10 Employment Projections in the SCAG Region (2019, 2022, 2030, 2045, and 2050)

COUNTY NAME	EMPLOYMENT 2019	EMPLOYMENT 2022	EMPLOYMENT 2030	EMPLOYMENT 2045	EMPLOYMENT 2050	PERCENTAGE INCREASE 2019-2050
Imperial	69,000	70,000	78,000	88,000	91,000	31.9%
Los Angeles	5,031,000	4,942,000	5,277,000	5,525,000	5,433,000	8.0%
Orange	1,805,000	1,806,000	1,903,000	1,998,000	2,019,000	11.9%
Riverside	847,000	897,000	983,000	1,147,000	1,185,000	39.9%
San Bernardino	860,000	856,000	962,000	1,079,000	1,145,000	33.1%
Ventura	363,000	367,000	379,000	380,000	376,000	3.6%
SCAG Region	8,976,000	8,937,000	9,581,000	10,218,000	10,248,000	14.2%

Source: SCAG 2023a, Table 12: Region and county forecast of population, households, and employment

Table Note: Numbers are rounded to the nearest thousand.

3.14.2 REGULATORY FRAMEWORK

FEDERAL

FEDERAL UNIFORM ACT

The Federal Uniform Act (Uniform Relocation Assistance and Real Property Acquisition Policies Act; 42 U.S. Code [USC] 61), passed by Congress in 1970, is a federal law that establishes minimum standards for federally funded programs and projects that require the acquisition of real property (real estate) or displace persons from their homes, businesses, or farms. The Uniform Act’s protections and assistance apply to the acquisition, rehabilitation, or demolition of real property for federal or federally funded projects (United States Code 1971).

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT ACT

The Department of Housing and Urban Development Act created the U.S. Department of Housing and Urban Development (HUD) as a Cabinet-level agency. HUD is responsible for national policy and programs that address housing needs in the U.S. HUD is responsible for enforcing fair housing laws. HUD plays a major role in supporting homeownership by underwriting homeownership for lower- and moderate-income families through its mortgage insurance programs (Federal Register 1965).

FIXING AMERICA’S SURFACE TRANSPORTATION ACT

The federal Fixing America’s Surface Transportation Act (Pub. L. No. 114-94) is discussed in detail in Section 3.17, *Transportation*.

FEDERAL PLANNING REGULATIONS, TITLE 23 CFR 450.322(E)

This federal regulation requires that in development of the regional transportation plan that the related local Metropolitan Planning Organization (MPO) validate data utilized in preparing other existing modal plans (such as transit providers long range plans) for providing input to the regional transportation plan. In updating the transportation plan, the MPO shall base the update on the latest available estimates and assumptions for

population, land use, travel, employment, congestion, and economic activity. The MPO shall approve transportation plan contents and supporting analyses produced by a transportation plan update (Electronic Code of Regulations 2016).

STATE

SB 375 – THE SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT

A detailed discussion of the Sustainable Communities and Climate Protection Act of 2008 (SB 375, Chapter 728, Statutes of 2008) is provided in Section 3.8, *Greenhouse Gas Emissions*. As discussed in Section 3.8, SB 375 requires California MPOs to develop a Sustainable Communities Strategy (SCS) as part of its Regional Transportation Plan (RTP), with the purposes of identifying policies and strategies to reduce per capita passenger vehicle-generated GHG emissions. The SCS must identify the general location of land uses, residential densities, and building intensities within the region; identify areas within the region sufficient to house all the population of the region; identify areas within the region sufficient to house an eight-year projection of the regional housing need; identify a transportation network to service the regional transportation needs; gather and consider the best practically available scientific information regarding resources areas and farmland in the region; consider the state housing goals; set forth a forecasted regional development pattern; and allow the regional transportation plan to comply with the federal Clean Air Act of 1970 (CAA) (42 USC 7401 et seq.) (Government Code Section 65080(b)(F)(2)(B)). The SCS, when integrated with the transportation network, and other transportation measures and policies must reduce the GHG from automobiles and light duty trucks to achieve, if there is a reasonable way to do so, the GHG emission reduction targets approved by the California Air Resources Board (CARB).

SB 375 also imposes a number of new requirements on the regional housing needs process. Prior to SB 375, the regional transportation plan and regional housing needs processes were not required to be coordinated. SB 375 now synchronizes the schedules of the RHNA (as discussed in more detail below) and RTP processes every eight years. The RHNA also allocates housing units within the region consistent with the forecasted regional development pattern included in the SCS.

In addition, the intent of SB 375 is to streamline the CEQA review process for projects that reduce GHG emissions and that do not have the potential to result in previously unaddressed potentially significant environmental impacts. Generally, CEQA streamlining may apply if a project is consistent with the SCS. Lead agencies have the discretion to determine project consistency with the SCS.

HOUSING ELEMENT LAW

Enacted in 1969, Housing Element Law (Government Code Section 65580–65589.8) mandates that local governments adequately plan to meet the existing and projected housing needs of all economic segments of the community. The law acknowledges that in order for the private market to adequately address housing needs and demand, local governments must adopt land use plans and regulatory systems that provide opportunities for, and do not unduly constrain, housing development. As a result, housing policy in the State rests largely upon the effective implementation of local general plans and, in particular, local housing elements. Housing element law also requires HCD to review local housing elements for compliance with State law and to report its written findings to the local government.

REGIONAL HOUSING NEEDS ASSESSMENT

The California Legislature developed the RHNA process (Government Code Section 65580 et seq.) in 1977 to address the affordable housing shortage in California. The California Department of Housing and Community Development (HCD) in consultation with each council of governments determines each region's existing and projected housing need (Government Code Section 65584(b)). HCD must meet and consult with each council of governments, including SCAG, regarding the assumptions and methodology to be used by HCD to determine the region's housing need (Government Code Section 65584.01(b)). HCD's determination is based on population projections produced by the California Department of Finance (DOF) and regional population forecasts used in preparing regional transportation plans (Government Code Section 65584.01(a)).

In consultation with HCD, each council of governments must develop and adopt a methodology for distributing the regional housing determination to cities and counties, or jurisdictions within the region (Government Code Section 65584.04). The council of governments then adopts a final regional housing need plan that allocates a share of the regional housing need to each city and county (Government Code Section 65584(b)).

Local governments must address their allocated share of housing needs of all economic segments of the community through their housing elements (Government Code Sections 65580–65589.11). Local governments must adopt a housing element as part of their general plan. Unlike the rest of the general plan, where updates sometimes occur at intervals of 20 years or longer, under previous law the housing element was required to be updated as frequently as needed and no less than every five years. Under SB 375, this period (2008) was lengthened to eight years and timed so that the housing element period begins no less than 18 months after adoption of the regional transportation plan to encourage closer coordination between housing and transportation planning. SB 375 also changed the implementation schedule required in each housing element. Previous law required the housing element to contain a program which set forth a five-year schedule to implement the goals and objectives of the housing element. Because of SB 375, current law instead requires this schedule of actions to occur during the eight-year housing element planning period, and requires each action have a timetable for implementation.

The purpose of the housing element is to identify the community's housing needs, state the community's goals and objectives with regard to housing production, rehabilitation, and conservation to meet those needs. In addition, the housing element defines the related policies and programs that the community will implement in order to achieve the stated goals and objectives.

In prior cycles, factors such as household growth and household income distribution were the primary factors considered in determining a jurisdiction's RHNA allocation. For the 6th cycle RHNA, SCAG considered other factors in addition to household growth. These factors include transit accessibility, job accessibility, and indicators that influence a community's environmental, educational, and economic resource accessibility and whether a jurisdiction was considered disadvantaged through low access to these resources.

For the SCAG region, the 6th cycle RHNA covered the housing planning period between October 2021 and October 2029. Local jurisdictions were required to prepare and adopt their respective housing elements by October 2021. The RHNA does not necessarily encourage or promote growth, but rather allows communities to anticipate growth and address existing need, so that they can grow in ways that enhance quality of life, improve access to jobs, transportation and housing, and not adversely impact the environment (SCAG 2023c).

The region's 6th cycle RHNA distribution methodology consists of two measurements of housing need: (1) existing need and (2) future need. Together they form a jurisdiction's total RHNA allocation, which was further divided to determine the need for very-low-income, low-income, moderate-income, and above-moderate-income households.

Consistent with the state housing law, the primary objectives of the 6th cycle RHNA allocation plan are:

1. Increase the housing supply and mix of housing types, tenure, and affordability within each region in an equitable manner;
2. Promote infill development and socioeconomic equity, the projection of environmental and agricultural resources, and the encouragement of efficient development patterns;
3. Promote an improved interregional relationship between jobs and housing;
4. Allocate a lower proportion of housing need in income categories in jurisdictions that have a disproportionately high share in comparison to the county distribution; and
5. Affirmatively further fair housing

On March 4, 2021, SCAG's Regional Council adopted the 6th cycle Final RHNA Allocation Plan. The 6th cycle Final RHNA Allocation Plan was amended on July 1, 2021, to reflect a transfer of RHNA units from a county to a city in accordance with Government Code Section 65584.07. The 6th cycle Final RHNA Allocation Plan had a final RHNA determination of approximately 1.34 million total housing units among four income categories for SCAG to distribute among its jurisdictions for the planning period between October 2021 and October 2029. The emphasis of RHNA shifted substantially toward addressing existing need, whereas in prior cycles it had focused almost entirely on need due to anticipated population growth.

Since SCAG adoption of the RHNA allocation plan in 2021, local jurisdictions have been in the process of adopting housing elements. At the time of preliminary forecast development (April 2022) only 12 of the region's 197 jurisdictions had 6th cycle housing elements which had been adopted and certified by the state. While local jurisdictions were requested to consider housing element updates in their review of LDX growth data, only 87 had adopted and certified housing elements by January 2023, immediately after the deadline for LDX input. Additionally, some local jurisdictions may not be required to complete rezonings associated with housing element updates until October 2024, rendering data on newly available sites inherently incomplete (or unavailable) for the purposes of Connect SoCal 2024.

Nevertheless, the 6th cycle of RHNA has the potential to substantially increase the quantity of sites available for housing especially in jurisdictions with RHNA allocations in excess of their Connect SoCal 2020 household forecasts. As such, SCAG's preliminary growth forecast at the jurisdiction and neighborhood levels, released in May 2022, sought to reflect any capacity changes from the 6th cycle of RHNA as this is an adopted policy with a potential impact on household growth by 2050.

As discussed above, under Government Code Section 65080(b)(2)(B)(iii), the SCS element of Connect SoCal 2024 must identify areas within the region sufficient to house an eight-year projection of SCAG's regional housing need. SCAG's regional housing need for the 6th cycle RHNA as determined by HCD captures existing and projected need.

2022 SCOPING PLAN

As discussed in Section 3.8, *Greenhouse Gas Emissions*, of this PEIR, the California Air Resources Board (CARB) adopted the 2022 Scoping Plan for Achieving Carbon Neutrality (Scoping Plan) in December 2022 (see Section 3.8.2, *Regulatory Framework*, for a complete description of the 2022 Scoping Plan). The Scoping Plan provides an approach to achieve targets for carbon neutrality and reduce anthropogenic greenhouse gas (GHG) emissions by 85 percent below 1990 levels no later than 2045.

The Scoping Plan acknowledges the legacy of transportation and land use decision making that has resulted in marginalization of low-income communities and communities of color. Discriminatory land use, lending and real estate practices and policies resulted in the marginalization of households belonging to people of color, leading to lasting inequalities. In addition, decisions made regarding the building and expansion of transportation systems divided communities of color and primarily benefited white suburban commuters.

The 2022 Scoping Plan contains a discussion of housing cost and affordability to address these issues. Shifting the development patterns and transportation systems is critical to achieve sustainable and equitable communities. In addition, in order to ensure that households that would benefit most from living in more accessible areas are not displaced by new investments requires that State, regional, and local governments proactively anticipate and avoid potential unintended equity and social consequences, including gentrification and displacement of historically underserved and disadvantaged communities. The State encourages local jurisdictions to develop strategic anti-displacement and neighborhood stabilization plans. The Scoping Plan emphasizes providing housing for all sectors of the community.

Appendix D of the 2022 Scoping Plan notes that AB 32 directs that CARB:

... ensure that the greenhouse gas emission reduction rules, regulations, programs, mechanisms, and incentives under its jurisdiction, where applicable and to the extent feasible, direct public and private investment toward the most disadvantaged communities in California and provide an opportunity for small businesses, schools, affordable housing associations, and other community institutions to participate in and benefit from statewide efforts to reduce greenhouse gas emissions. (CARB. 2022)

Appendix E of the Scoping Plan provides guidance for Sustainable and Equitable Communities, and is directly targeted at providing guidance to MPOs in the preparation of RTP/SCS documents:

The 2022 Scoping Plan Update calls for reductions in GHG emissions from these sectors [residential and commercial development]. More sustainable and equitable development patterns and transportation choices will support these reductions.

...

Communities with shorter driving distances and more options for active travel produce benefits beyond the environment and equity, including reduced financial burden, better access to opportunities, and improved public health.

The 2022 Scoping Plan identifies four strategy areas as well as objectives and associated actions to achieve the Scoping Plan vision/targets:

1. Plan and invest in a sustainable transportation system.
2. Manage the use of the transportation system to advance climate and equity goals.

3. Shape the deployment of new mobility options.
4. Improve alignment of land use planning and development with climate and equity goals.

For each strategy area, Appendix E of the Scoping Plan identifies (i) a vision for the year 2045 that would be consistent with meeting California’s carbon neutrality goal while advancing equity; (ii) policy objectives that should be achieved to deliver the vision for that strategy area; and (iii) selected actions that should be taken as quickly as possible, especially by the State, to implement those policy objectives.

With respect to Strategy Area 4, Appendix E of the Scoping Plan indicates:

Achieving carbon neutrality no later than 2045 requires land use planning and development activities that are consistent with and advance State planning priorities by significantly augmenting growth in transportation-efficient, resource-rich, accessible, and inclusive communities for all Californians. This vision is aligned with the CTP 2050’s and University of California researchers’ latest modeling and analyses, which indicated that California would not meet its climate goals without future growth in population and employment happening primarily within the state’s most densely populated areas and improving the balance of housing, employment, shopping, and other key services within any given community. Although MPOs create SCSs that identify how each region may accommodate its growth in patterns that help meet GHG reduction targets set by CARB, these plans are not being fully implemented.

Objectives and associated actions are:

1. **Accelerate infill development in existing transportation-efficient places and deploy strategic resources to create more transportation-efficient locations.**

...

To increase investment in under-resourced communities and expand access to high-resource neighborhoods, the State should pursue a combination of the following actions: i) providing financial and educational tools, resources, and incentives; ii) streamlining review processes; iii) strengthening protections for natural and working lands; iv) facilitating collaboration with key partners; and v) providing and requiring anti-displacement protections for existing residents and businesses.

2. **Encourage alignment in land use, housing, transportation, and conservation planning in adopted regional plans (RTP/SCS and RHNA) and local plans (e.g., general plans, zoning, and local transportation plans).** *SCSs illustrate future land use and transportation changes that would lead to reductions in VMT and GHG emissions to meet the regional GHG emission reduction targets set by CARB. However, as noted earlier, SCS implementation is lagging significantly across the state. As detailed in the California Transportation Assessment Report (pursuant to AB 285 (Friedman, Chapter 605, Statutes of 2019)), MPOs, which develop the SCS plans, do not have adequate instruments to implement them and do not have the authority to ensure alignment of local land use decisions – as reflected in cities and counties’ general plans – with the SCSs. The goal of this objective is to strengthen regional plan implementation and funding and the ability of regional plans to achieve regional GHG targets. Advancing California regions’ visions for accelerating infill development and climate-smart housing production will require a collective discussion about establishing more coordinated MPO-local government relationships that lead to codifying those regional visions into land use plans and ordinances at the local level.*

Actions:

- *Establish a requirement that all local general plans demonstrate consistency with the assumptions and growth allocations in regional RTP/SCSs at least every 8 years consistent with existing RHNA and housing element update timelines.*
- *Explore measures to ensure or require greater consistency and alignment between regional RHNA allocations, SCSs, and regional plans such as strategic planning that prioritizes green space and conservation and encourage greater integration of state housing and conservation policy priorities to minimize/prevent conflict.*

3. Accelerate production of affordable housing in forms and locations that reduce VMT and affirmatively further fair housing policy objectives.

Actions:

- *Further ease local regulatory and California Environmental Quality Act (CEQA) barriers to increasing density and affordable housing development, especially in transportation-efficient areas, and establish protections in the law against tactics to obstruct developments that advance State equity and climate goals.*

LOCAL PLANNING AND APPROVAL FOR EMERGENCY SHELTERS AND TRANSITIONAL AND SUPPORTIVE HOUSING – SENATE BILL 2

SB 2 (Chapter 633, Statutes of 2007) strengthens state housing element law (Government Code Section 65583) by ensuring that every jurisdiction identifies potential sites where new emergency shelters can be located without discretionary review by the local government. It also increases protections for providers seeking to open a new emergency shelter, transitional housing, or supportive housing development, by limiting the instances in which local governments can deny such developments.

CALIFORNIA RELOCATION ASSISTANCE ACT

The California Relocation Assistance Act (Government Code Section 7260 et seq.) establishes uniform policies to provide for the fair and equitable treatment of people displaced from their homes or businesses as a direct result of state and/or local government projects or programs. The California Relocation Assistance Act requires that comparable replacement housing be made available to displaced persons within a reasonable period of time prior to the displacement. Displaced persons or businesses are assured payment for their acquired property at fair market value. Relocation assistance in the form of advisory assistance and financial benefits would be provided at the local level. This includes aid in finding a new home location, payments to help cover moving costs, and additional payments for certain other costs.

SENATE BILL 535: CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006: GREENHOUSE GAS REDUCTION FUND

SB 535 was signed into law by Governor Brown on September 30, 2012. This bill sets aside cap and trade revenues to mitigate climate change in disadvantaged communities. CalEPA is the responsible agency for identifying disadvantaged communities for potential investment. The California DOF must allocate 25 percent of the available moneys in the Greenhouse Gas Reduction Fund to projects that benefit disadvantaged communities and a minimum of 10 percent to projects located within disadvantaged communities.

HOMEOWNERS AND PRIVATE PROPERTY PROTECTION ACT

In 2008, California voters approved Proposition 99, the Homeowners and Private Property Protection Act, which amended the California Constitution so that local governments are prohibited from using eminent domain authority to acquire an owner-occupied residence for the purposes of conveying it to a private recipient, with limited exceptions. Proposition 99 applies only to owner-occupied residences but cities may still use eminent domain authority to convey multifamily and non-residential property to other private parties (Los Angeles Law Library 2008).

AFFORDABLE HOUSING AND HIGH ROAD JOBS ACT - AB 2011

AB 2011, the Affordable Housing and High Road Jobs Act, was signed in September 2022 and became effective on July 1, 2023. AB 2011 creates a CEQA-exempt, ministerial approval process for multi-family housing projects on sites within a zone in which office, retail or parking are the principally permitted use. AB 2011 contains different qualifying criteria depending on if the proposed housing project is 100 percent affordable or a mixed-income project. In order to qualify, construction workers must be paid prevailing wages. Other labor standards are applicable if the project is more than 50 units.

MIDDLE CLASS HOUSING ACT - SB 6

SB 6, the Middle Class Housing Act, was signed in September 2022 and became effective on July 1, 2023. Similar to AB 2011, SB 6 allows residential development on sites currently designated and zoned for office, retail or parking uses. Qualifying projects under SB 6, must be either all housing or a mixed-use development with at least 50 percent of the new construction dedicated to housing. Affordable housing is not required in order to qualify. The project must be located within an urbanized area or urban cluster with less than one-third of the site (or its immediate neighbors) dedicated to industrial uses. In addition, certain construction labor requirements must be met such as paying prevailing wages and utilizing skilled and trained workforce. SB 6 differs from AB 2011 in that it does not create a new approval process for such projects.

CALIFORNIA HOME ACT - SENATE BILL 9

SB 9 requires local agencies to allow housing development with no more than two primary units in a single-family zone, the subdivision of a parcel in a single-family zone into two parcels, or both with ministerial approval. Therefore, SB 9 facilitates the creation of up to four housing units in the lot area typically used for one single-family home. There are eligibility criteria that address environmental constraints, such as wetlands and wildfire risk, anti-displacement measures for renters and low-income households, and the protection of historic structures and districts.

HOUSING DEVELOPMENT - DENSITY - SENATE BILL 10

SB 10 became effective on January 1, 2022, and extends until January 1, 2029. SB 10 allows local agencies to adopt an ordinance to allow up to 10 dwelling units on any parcel, at a height specified in the jurisdiction's ordinance, if the parcel is located within a transit-rich area or on an urban infill site. In addition, up to two accessory dwelling units or junior accessory dwelling units that would not count towards the 10-unit threshold would be permitted on each parcel. SB 10 exempts the adoption of the ordinance from CEQA. However, the approval of a housing development would remain subject to CEQA if discretionary permits are required.

LOCAL

HOUSING ELEMENTS OF COUNTY AND CITY GENERAL PLANS

The most comprehensive and detailed land use planning, including that for population, housing, and employment in the SCAG region, is provided by city and county General Plans, which local governments are required by state law to prepare as a guide for future development. As noted above, state law mandates that local governments adequately plan to meet the existing and projected housing needs of all economic segments of the community as discussed above.

Housing Elements must be updated to reflect the most recent RHNA; 6th cycle housing elements were due to HCD October 15, 2021. Jurisdictions that did not have an adopted and compliant housing element by the October deadline became ineligible to apply for certain local funding opportunities. In accordance with SB 197, zoning must be updated to reflect the 6th cycle RHNA by October 2025. If zoning updates are not adopted on schedule, a community would not be eligible for major state funding sources for affordable housing construction (such as the Affordable Housing and Sustainable Communities grant, the Infill Infrastructure Grant, etc.), could have weakened controls over local zoning (known as the “Builder’s Remedy”), could face court-imposed fines and/or other court actions to bring the jurisdiction into compliance.

The housing element of a general plan illustrates strategies for future development and improvements to the area’s housing stock, with specific goals for the short-term (see **Table 3.14-11, Summary of Housing Goals by County in the SCAG Region**). The housing element often includes programs to improve neighborhoods, provide adequate housing sites, assist in the provision of affordable housing, and promote fair and equal housing opportunities. Housing policy in the state rests largely upon the effective implementation of local general plans and, in particular, local housing elements.

TABLE 3.14-11 Summary of Housing Goals by County in the SCAG Region

COUNTY	COUNTY AND CITY POLICIES AND ORDINANCES
Imperial ¹	<p>Goal 1: Ensure the availability of a variety of housing types for all income levels throughout the county.</p> <p>Goal 2: Encourage affordable housing developments by using all available funding sources, offering developer incentives, and allowing a wide range of housing types to serve the housing needs of the county’s labor force, special-needs groups, and families of all income levels.</p> <p>Goal 3: Continue to facilitate the provision of housing suited to persons with special housing needs.</p> <p>Goal 4: Facilitate the provision of fair housing opportunities for all residents of Imperial County.</p> <p>Goal 5: Encourage the improvement, rehabilitation, and revitalization/reinvestment of the county’s existing residential neighborhoods.</p> <p>Goal 6: Promote sustainable development by encouraging the inclusion of energy conservation features in new and existing housing stock.</p> <p>Goal 7: Encourage and facilitate the regional coordination of public agencies and business organizations to maximize public and private-sector resources that will support a vibrant community.</p> <p>Goal 8: Pursue actions to reduce regulatory constraints to housing that impede housing opportunities.</p>
Los Angeles ²	<p>Goal 1: A wide range of housing types in sufficient supply to meet the needs of current and future residents, particularly for persons with special needs, including but not limited to: extremely low, very low and low income households, seniors, persons with disabilities (including those with developmental disabilities), large households, female-headed households, people experiencing homelessness and at risk of homelessness, and farmworkers.</p> <p>Goal 2: Communities with equitable access to employment opportunities, community facilities and services, and amenities.</p>

COUNTY	COUNTY AND CITY POLICIES AND ORDINANCES
	<p>Goal 3: A housing supply that ranges broadly in costs to enable all households, regardless of income, to secure adequate housing.</p> <p>Goal 4: A comprehensive system of services and housing that prevents and ends homelessness.</p> <p>Goal 5: Opportunities for acutely low, extremely low, very low, low, and moderate income households and those with special needs to attain and maintain affordable and adequate housing.</p> <p>Goal 6: Neighborhoods with a stable supply of housing that is affordable to residents of all income levels and facilitates aging in place.</p> <p>Goal 7: Protection against residential displacement.</p> <p>Goal 8: Neighborhoods and housing environments that are livable, healthy, and safe for all residents.</p> <p>Goal 9: An adequate supply of housing preserved and maintained in sound condition.</p> <p>Goal 10: Accessibility to adequate housing for all persons without discrimination in accordance with state and federal fair housing laws.</p> <p>Goal 11: Alignment of housing production with state and local sustainability goals in order to protect natural resources, reduce greenhouse gas emissions, and foster climate resilience.</p> <p>Goal 12: Planning for and monitoring the long-term affordability of adequate housing.</p>
Orange ³	<p>Strategy 1: Ensure that the General Plan and Comprehensive Zoning Code identify and zone sufficient land at appropriate densities to accommodate the County’s share of regional housing needs.</p> <p>Strategy 2: Facilitate production of high-quality affordable housing for lower income and special needs households and permanent supportive housing including affordable housing opportunities for households with incomes less than 30% of area median income (AMI) through inclusionary housing, incentives, and financial assistance.</p> <p>Strategy 3: Conserve and improve the condition of the existing housing stock, especially affordable housing.</p> <p>Strategy 4: Work cooperatively with cities and LAFCO to facilitate the annexation and revitalization of urbanized Unincorporated islands.</p> <p>Strategy 5: Promote equal housing opportunities for all persons without discrimination on the basis of race, religion, ethnicity, sex, age, marital status, disability, or household composition through enforcement of fair housing laws.</p> <p>Strategy 6: Encourage the development of supportive housing for persons with disabilities, and protected classes, through the following actions.</p> <ul style="list-style-type: none"> • Conduct outreach and education on fair housing rights and of the process to make appropriate referrals for fair housing complaints. • Provide housing resources for prevention of homelessness and alternative housing for the homeless and disabled. • Address contributing factors to fair housing issues – including access to regional, economic, educational, and environmental opportunities. • Encourage the use of energy conservation features in residential construction, remodeling, and existing homes.
Riverside ⁴	<p>Goal 1: Facilitate new housing opportunities to meet the needs of existing and future unincorporated Riverside County residents in all income categories.</p> <p>Goal 2: Encourage construction of innovative housing types that are affordable and promote mixed-income neighborhoods.</p> <p>Goal 3: Encourage construction, maintenance, improvement, and preservation of safe, decent, and sound affordable housing in unincorporated Riverside County.</p> <p>Goal 4: Work towards meeting the housing needs of special groups of unincorporated County residents, including but not limited to a growing senior population, large families, female headed households, farmworkers, persons with disabilities, persons with developmental disabilities, and persons and households in need of emergency shelter.</p> <p>Goal 5: Promote affirmative further fair housing opportunities throughout the unincorporated County for all persons regardless of age, race, religion, color, religion, ancestry, national origin, sex, marital status, disability, familial status, or sexual orientation.</p>

COUNTY	COUNTY AND CITY POLICIES AND ORDINANCES
San Bernardino ⁵	<p>Goal H-1: A broad range of housing types in sufficient quantity, location, and affordability levels that meet the lifestyle needs of current and future residents, including those with special needs.</p> <p>Goal H-2: An efficient administrative process that recognizes the need for efficient and timely review of residential projects while also ensuring and valuing the need for quality design, environmental review, and planning.</p> <p>Goal H-3: Neighborhoods that protect the health, safety, and welfare of the community, and enhance public and private efforts in maintaining, reinvesting in, and upgrading the existing housing stock.</p> <p>Goal H-4: The development, maintenance, modernization, and preservation of affordable housing; and the provision of assistance, where feasible, for residents to rent or purchase adequate housing in San Bernardino County.</p> <p>Goal H-5: Equal housing opportunities for all persons regardless of race, age, religion, sex, marital status, disability status, ancestry, national origin, or color.</p>
Ventura ⁶	<p>Goal HE-1: Conserve and improve the existing housing stock within the unincorporated areas of Ventura County.</p> <p>Goal HE-2: Provide suitable sites for housing development that can accommodate a range of housing by type, size, location, price, and tenure to meet the requirements of the regional housing need allocation.</p> <p>Goal HE-3: Increase special needs housing opportunities and supportive services for lower income households, seniors, persons with disabilities, persons with mental illness, large families with children, female-headed households, and people who are experiencing homelessness.</p> <p>Goal HE-4: Continue to reduce and, where feasible and practical, remove County-imposed constraints that impede the development of affordable housing.</p> <p>Goal HE-5: Affirmatively further fair housing by taking meaningful actions that overcome patterns of segregation and foster inclusive communities.</p>

- Sources: 1. County of Imperial 2022.
 2. County of Los Angeles 2022.
 3. County of Orange 2023.
 4. County of Riverside 2021.
 5. County of San Bernardino 2022.
 6. County of Ventura 2021.

LOCAL COASTAL PROGRAMS

The Local Coastal Programs are local planning tools to monitor development and permitting in coastal areas. There are three counties and 26 cities within the SCAG region with coastlines that are mandated to prepare Local Coastal Programs as a result of the California Coastal Act of 1976 (Pub. Res. Code §30000 et seq.). The Local Coastal Programs prepared by these local jurisdictions may contain goals and policies related to housing type, location, and affordability (California Coastal Commission 2019).

LOCAL ORDINANCES ADDRESSING AFFORDABLE HOUSING

Several communities are taking action to require that affordable housing be incorporated into individual projects. For example, Measure JJJ and associated City of Los Angeles’s Transit Oriented Communities.

LOS ANGELES AFFORDABLE HOUSING AND LABOR STANDARDS INITIATIVE (MEASURE JJJ)

Measure JJJ, approved by Los Angeles voters on November 8, 2016, enacts an initiative to impose minimum affordable housing requirements, training standards, and labor and wage regulations on development projects

requiring zoning changes and amendments to the General Plan, including provisions to require that a certain percentage of labor come from local workers. Key provisions of Measure JJJ are as follows:

- All development projects that include 10 or more residential units and require changes to the General Plan or other zoning and construction rules (i.e., meet training, local hiring, and prevailing wage requirements) would be required to make a percentage of the units affordable to low-income and working residents, or pay a fee to fund affordable housing and enforce laws that protect renters. Developers would be required to make as much as 20 percent of the units in a project affordable for low-income and working renters. That number can be as high as 40 percent for homes that are for sale.
- Developers of any such residential projects would have to hire contractors who:
 - Are licensed according to city and state law;
 - Guarantee to offer at least 30 percent of work-hours to city residents, with 10 percent coming from those living within five miles of the project;
 - Pay standard wages for the area; and
 - Employ members of apprenticeship training programs and workers with real-world experience.
- No changes to Community Plans could be made without a guarantee that the changes would not “reduce the capacity for creation and preservation of affordable housing and access to local jobs.”
- Moreover, projects planned around public transit within a half mile of significant public transit stops would be encouraged through an incentive program that would apply only to projects that include affordable housing and require contractors to comply with the restrictions laid out in the second bullet above.
- No tax dollars to be used.

CITY OF LOS ANGELES TRANSIT-ORIENTED COMMUNITY (TOC) GUIDELINES

In compliance with Measure JJJ discussed above, the City released Transit Oriented Communities (TOC) guidelines effective September 22, 2017. The guidelines provide incentives for projects planned around public transit, within one-half mile of significant public transit stops that include units set aside for affordable housing within the development project. In order to be eligible for TOC incentives, projects must include specified levels of Extremely Low Income, Very Low income or Lower Income units. The guidelines outline four tiers of incentives, based on proximity to transit and type of transit (i.e., fixed rail, rapid bus). Incentive options include a density bonus, FAR increase, or parking reduction, with additional incentives such as additional height and reductions in open space, lot width, lot coverage, or yard requirements. Each tier has different requirements for income levels. The TOC Guidelines also provide for reduced parking requirements in each tier, with no parking required for eligible residential projects in Tier 4. In addition to Base incentives for density and FAR, the TOC Guidelines provide a menu of Additional Incentives including reductions for yards/setbacks, open space, minimum required lot widths, lot coverage and building heights (including transitional heights). The TOC Guidelines are in place for 10 years but may be extended for 5 additional years.

3.14.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to population and housing if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).
- Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis of population and housing considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

The methodology for determining the significance of population and housing impacts compares the existing conditions (2019) to future (2050) conditions, as required in CEQA Section 15126.2(a).

The Plan includes policies, strategies, and investments that may influence population, housing and employment growth and distribution. Forecasted land use patterns are developed to accommodate growth projections by identifying distribution and anticipated land uses that may allow for well-planned growth. SCAG holds growth projection numbers constant at the county and regional level, meaning that as the distribution of population, housing and employment changes, the total numbers remain constant. In sum, the Plan includes a growth forecast, land use and transportation strategies, and projected land use patterns which are integrated with the transportation network and investments (see Chapter 2, *Project Description*). See Chapter 4, *Alternatives* for an evaluation of a range of feasible alternatives that consider the possibility of different growth patterns.

Although land use development would occur with or without the Plan, Connect SoCal 2024 has the potential to influence growth distribution patterns throughout the region, partially by encouraging new growth in Priority Development Areas (PDAs) and by minimizing growth in Green Region Resource Areas (GRRAs). The analysis in the 2024 PEIR addresses impacts of 1) transportation projects identified in the Plan, 2) implementation of land use and transportation policies and strategies and potential land use projects, and 3) the regional growth forecast that identifies one potential development pattern that implements the Plan.

Transportation projects in the Plan were reviewed to identify those that may involve right-of-way (ROW) acquisition and the potential for displacement of homes and businesses. These projects that might require acquisition of ROW were analyzed with a 500-foot distance with a geographic information system (GIS) to

generally identify locations within areas of residential land use that had the potential for large displacement of existing homes and businesses.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies, some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan. See CEQA Guidelines Section 15126.4(a)(1)(B). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT POP-1 Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

Significant and Unavoidable Impact – Mitigation Required

As discussed in Chapter 2, *Project Description*, the Connect SoCal 2024 growth forecast takes into account the available 6th cycle RHNA housing element information for each jurisdiction. Other factors taken into account in the growth forecast for each jurisdiction include: available land capacity, information regarding entitled projects, and application of growth in order priority pursuant to the Regional Growth Vision (i.e., increase, but not maximize, growth in Priority Development Areas and minimize, but not preclude growth in Green Region Resource Areas).¹ In this way Connect SoCal 2024 identifies areas within the region sufficient to house the 6th cycle RHNA.

Implementation of the Plan would generally result in increased population densities in urban areas. As identified in Chapter 2, *Project Description*, the Plan generally encourages a compact development with a focus on infill development including redevelopment of existing urban and suburban areas. The Plan seeks to implement the 2022 Scoping Plan as well as SCAG's equity and inclusivity commitments mentioned above, and includes policies and strategies to reflect Scoping Plan objectives with respect to housing, in particular affordable housing. As discussed in Chapter 5, *Other CEQA Considerations*, of this PEIR, the Plan would accommodate planned population growth and would generally not induce growth.

¹ The Connect SoCal 2024 Regional Growth Forecast begins with an expert assessment of regional demographic and economic trends and uses a variety of data sources—including local land use plans—to assess where growth is most likely to occur within the region, emphasizing a balance between future employment, population, and households. SCAG's RTP/SCS growth forecasting process is also informed by the Regional Growth Vision and integrates input from local jurisdictions. As discussed above, SCAG's preliminary growth forecast at the jurisdiction and neighborhood levels, released on May 23rd, 2022, sought to reflect capacity changes from the 6th cycle of RHNA based on available housing elements and information from jurisdictions. SCAG used its best efforts to incorporate the RHNA, but the data is inherently incomplete because only 12 of 197 jurisdictions had certified housing elements, and some local jurisdictions may not be required to complete rezoning associated with housing elements until October 2024. However, it is expected that household growth over the Connect SoCal 2024 horizon will exceed the 6th cycle RHNA housing unit need.

Transportation policies included in the Plan such as transportation systems management and complete streets would support increased density in existing urban and suburban areas by facilitating travel in these areas. Transportation policies would not be expected to induce population growth as the policies are growth accommodating and generally are aimed at improving the existing transportation networks.

Transportation projects identified in the Plan, such as new and expanded light and heavy rail projects, have the potential to create demand for new development around transit stations. However, transit stations are generally located in areas that are already developed where growth is planned and desirable.

Generally, most jurisdictions have started planning for increased density in urban areas and the Plan builds on local input (and is not intended to result in re-designation of areas where such re-designation is not approved by the local jurisdiction). However, there remains the potential for the Plan's policies and strategies to influence population growth in areas where local general plans have not yet been updated to reflect such growth. Therefore, implementation of the Plan would have the potential to induce unplanned growth in some areas of the region resulting in a significant impact, requiring mitigation measures.

As discussed above and in Chapter 2, *Project Description*, the Plan's forecast regional development pattern provides for a projected population distribution that could occur in 2050. The total SCAG region population is expected to increase by approximately 1.3 million persons by 2050. The Regional Planning Policies and Implementation Strategies included in the Plan would encourage growth in PDAs and minimize growth in GRRAs. In 2019, 54 percent of total housing units were single-family units and 46 percent were multifamily units. The Plan projects that in 2050, 49 percent of new homes in the SCAG region will be single-family units and 51 percent multifamily units (SCAG 2023d).

In 2050, 22 percent of housing units are anticipated to be large-lot single-family units, 27 percent small-lot single-family units, 8 percent townhome units, and 43 percent multifamily units (SCAG 2023d). This projected housing mix would help the region accommodate the projected housing needs over the life of the Plan, especially housing at the lower income categories.

As mandated by State Housing Law as part of the periodic (every eight years) process of updating local housing elements of the General Plan, SCAG is responsible for the allocation of regional housing need to jurisdictions in the region. The most recent RHNA Allocation Plan, which covered the planning period from October 15, 2021, through October 15, 2029, and was adopted by SCAG's governing body, the Regional Council, on March 4, 2021, and amended on July 1, 2021 (SCAG 2021b). As discussed above, local jurisdictions are required to plan and zone to accommodate their respective RHNA allocation (housing units). Communities may use the RHNA in land use planning, prioritizing local resource allocation, and in deciding how to address identified existing and future housing needs resulting from population, employment, and household growth (SCAG 2023b). Local jurisdictions have until October 2024 to adopt updated zoning to accommodate their identified housing need.

Implementation of the Plan would accommodate 60.4 percent of the region's future population growth, 61.2 percent of the region's future housing units, and 64.8 percent of the future employment growth in PDAs (SCAG 2023d). This forecasted regional development pattern moves the region towards more compact, mixed-use development with a variety of housing types leading to more opportunities for walking and biking, more transit use, and shorter automobile trips. Additionally, the integrated transportation investments and land use policies in the Plan would encourage economic (jobs) and household growth in PDAs and could remove some obstacles to growth these areas; growth in GRRAs would be minimized. Improved accessibility and connectivity are anticipated to result from transportation investments in the Plan that could facilitate population and economic growth in

PDA. While growth is generally planned for and anticipated in PDAs, there remains the potential for to result in growth in some areas that are not yet fully planned for such growth (including areas where general plans are out of date). Therefore, implementation of the Plan would have a potential to influence and possibly indirectly induce unplanned growth in some areas of the SCAG region, and this impact is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GEN-1, SMM-LU-3, SMM-TRA-1, and SMM-TRA-2.

- SMM-POP-1** SCAG shall continue to facilitate collaboration forums, such as through SCAG’s Housing Group, and host public outreach events in various formats that respond to issues that shape the housing crisis and share information on sustainable housing development and potential funding opportunities.
- SMM-POP-2** SCAG shall continue to produce a variety of demographic, economic, education, housing, public health, and transportation information to facilitate data exchange for local jurisdictions across the region, through existing web-based planning tools, such as [SCAG Regional Data Platform \(RDP\)](#). Local jurisdictions may utilize for a variety of planning and community outreach purposes including project and program planning and grant development.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan’s Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to substantial direct or indirect unplanned population growth, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG’s lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT POP-2 Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

Significant and Unavoidable Impact – Mitigation Required

Plan implementation, in particular the construction of transportation projects that require expansion of existing or designation of new ROWs, have the potential to result in the displacement of existing people and housing, necessitating the construction of replacement housing, thereby constituting a potentially significant impact. In general, transportation projects included in the Plan would attempt to use existing ROWs to the maximum extent feasible. However, the development of some highway, arterial, transit and rail projects included in the Plan could result in the disturbance and/or loss of residential and business uses. Connect SoCal 2024 includes system

expansion projects, such as new freeway lane miles and new transit track miles, which have the potential to result in the loss of land currently used for residential and business purposes. Additional goods movement projects included in the Plan, such as grade separations, also have the potential to displace homes or businesses, as many of the areas where grade separations are proposed would be in developed urban areas.

Displacement of housing was qualitatively assessed by considering the location of transportation projects in relation to surrounding land uses and community development. Highway and transit/rail extensions and interchange projects were assumed to have a higher potential to disrupt or divide existing communities since they would involve the creation of new roadways. Highway widening and other projects along established transportation rights-of-way were assumed to have a lower potential to divide or disrupt existing communities and neighborhoods.

In total, the Plan includes approximately 5,601 new lane miles including freeways, toll roads, major and minor arterials, collectors, high-occupancy toll (HOT), and high-occupancy vehicle (HOV) lanes (SCAG 2023e). These transportation facilities could displace homes and businesses in the region, constituting a significant impact requiring the consideration of mitigation measures.

Implementation of the Plan would also encourage infill development and would facilitate increasing the housing supply at all income levels. As noted above, redevelopment has the potential to displace existing housing, which could necessitate the construction of replacement housing elsewhere. Supported by other public amenities and transit services, housing in some urban and suburban areas can command higher premiums that may be attractive to more affluent residents and unaffordable to current residents in these areas. This phenomenon contributes to gentrification and displacement (SCAG 2023b) that has occurred in parts of Los Angeles in recent years, including Downtown Los Angeles, Hollywood, Venice, Echo Park, and Koreatown. Plan policies could cause some existing housing in the region to be displaced and replaced with higher-density, and sometimes higher-cost housing, particularly within TPAs and other areas within urban cores. As discussed in Impact POP-1, above, the proposed land use patterns are anticipated to accommodate the majority of the region's future household growth in PDAs (SCAG 2023d). The Plan includes policies and strategies to prioritize affordable travel options and produce and preserve diverse housing types to improve affordability, accessibility, and opportunities for all households. The Plan indicates, "jurisdictions are encouraged to actively acknowledge and plan for potential impacts including displacement for both residents and small businesses."

As local governments seek to provide the region's population with housing and jobs in areas with active transportation opportunities, transit amenities, or other transportation options, it is anticipated that changes would occur in existing communities. As such, the potential for "gentrification," or a form of neighborhood change where neighborhoods of initially lower socioeconomic status become of higher socioeconomic status, and displacement could occur. Without policy intervention, residents of color and people with lower incomes are at a higher risk of being pushed out by rising prices or altered neighborhood character, and thus would not benefit from planned transit investment, stations, and other amenities (e.g., walkways and bikeways) that come with this new neighborhood revitalization.

In urban areas, redevelopment often has the potential to displace affordable housing and can disproportionately affect people of color, particularly Black and Indigenous populations. SCAG adopted Resolution No. 20-623-2 affirming its commitment to advancing justice, equity, diversity, and inclusion throughout Southern California, and adopted a Racial Equity Early Action Plan.² SCAG incorporates equity and diversity considerations into affirmatively

² See https://scag.ca.gov/sites/main/files/file-attachments/reeap_final.pdf?1620325603.

furthering fair housing through the RHNA process and the REAP program³ as well as the Inclusive Economic Recovery Strategy⁴ (part of SCAG's Racial Equity Early Action Plan). Through the 2022 Scoping Plan and as reflected in the Plan, the state and SCAG recognize that systematic housing undersupply leads to poor social outcomes; thus, encouraging increasing housing production is a direct and actionable way to achieve equity, diversity, and inclusion goals.

Despite Plan policies to address displacement, the potential to directly or indirectly induce substantial population growth, especially in PDAs, and displace a community in such an area could occur.

Concerns about indirect displacement of people have been raised regionwide, even where no changes to land use designations or zoning are planned. The rising cost of housing is currently a concern throughout much of the SCAG region and is reflective of the shortage of housing and stagnant incomes. In 2012, 57.0 percent of SCAG region renters spent more than 30 percent of their income on housing. By 2019, this figure dropped to 53.4 percent but climbed back to 55.0 percent by 2021. Severe cost-burden, defined as households that spend at least 50 percent of their income on housing, represented 30.8 percent of all renters and decreased to 29.8 percent in 2021. As a percentage of severe cost burden households to all cost-burden households, the figure increased from 54 percent to 54.2 percent. While a small increase, there are variations among SCAG counties. In Imperial County, the ratio of severely cost-burden households dropped by 13 percent and in San Bernardino County, the ratio dropped by 3.9 percent. However, in Orange County, the ratio of severely cost-burden households of overall paying renters increased by 2.4 percent (SCAG 2023b).

As population growth continues to outpace the production of housing units, the existing supply of housing is in higher demand which leads to higher rents/prices. This occurrence may result in displacement of renters and the need for people to move from their present location to an area further from their jobs. However, there is no substantial evidence that there is a reasonable method to predict how many people may potentially be displaced over the Plan horizon. Additionally, there is no industry standard methodology available to forecast transportation, air, noise, or other impacts associated with people who relocate as result of pricing pressures. In addition, as discussed in the Regulatory Framework above, the State and local jurisdictions are moving aggressively to plan and zone for new housing which should provide capacity to allow housing to become more available and less costly.

Local jurisdictions are evaluating and implementing various approaches to help relieve pressures on housing supply (e.g., Affordable Housing Linkage Fee, Accessory Dwelling Units Ordinance, Unapproved Dwelling Unit Ordinance, etc.). As properties are redeveloped, there could be temporary displacement of housing units due to the separation of time between removal and replacement of housing. This impact would be temporary, is expected to be spread over the timeframe of the Plan, and would be offset by overall increases in housing development under the Plan.

Displacement of low-income renters is a concern, but it is generally considered a social and economic impact, which is not an impact analyzed under CEQA unless it results in an indirect physical impact.⁵ An impact from displacement and/or gentrification is only an impact under CEQA if it results in a physical impact to the environment. As identified in Appendix G, those physical impacts could include construction of new housing,

³ See https://scag.ca.gov/sites/main/files/file-attachments/2991_reapfactsheet_r7.pdf.

⁴ See <https://scag.ca.gov/iers>.

⁵ *Porterville Citizens for Responsible Hillside Dev. v City of Porterville* (2007) 157 CA4th 885, 903 (claimed impact of new homes on existing home values is economic impact).

transportation, or other impacts related to people driving longer distances. As noted above, there is currently no methodology for estimating the number of people who would relocate or identifying where they would relocate to.

In conclusion, despite the proposed land use policies and strategies that encourage more housing development in PDAs, the Plan would have the potential to displace existing housing, which could regionwide be substantial, necessitating the construction or replacement of housing elsewhere. Therefore, this impact is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See **SMM-GEN-1** and **SMM POP-1** through **SMM POP-2**.

PROJECT-LEVEL MITIGATION MEASURE

PMM-POP-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce the displacement of existing housing, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:

- a) Evaluate alternate route alignments and transportation facilities that minimize the displacement of homes and businesses. Use an iterative design and impact analysis where impacts to homes or businesses are involved to minimize the potential of impacts on housing and displacement of people.
- b) Prioritize the use existing ROWs, wherever feasible.
- c) Develop a construction schedule that minimizes potential neighborhood deterioration from protracted waiting periods between ROW acquisition and construction.
- d) Review capacities of available urban infrastructure and augment capacities as needed to accommodate demand in locations where growth is desirable to the local lead agency and encouraged by the SCS (primarily TPAs, where applicable).
- e) When General Plans and other local land use regulations are amended or updated, use the most recent growth projections and RHNA allocation plan.

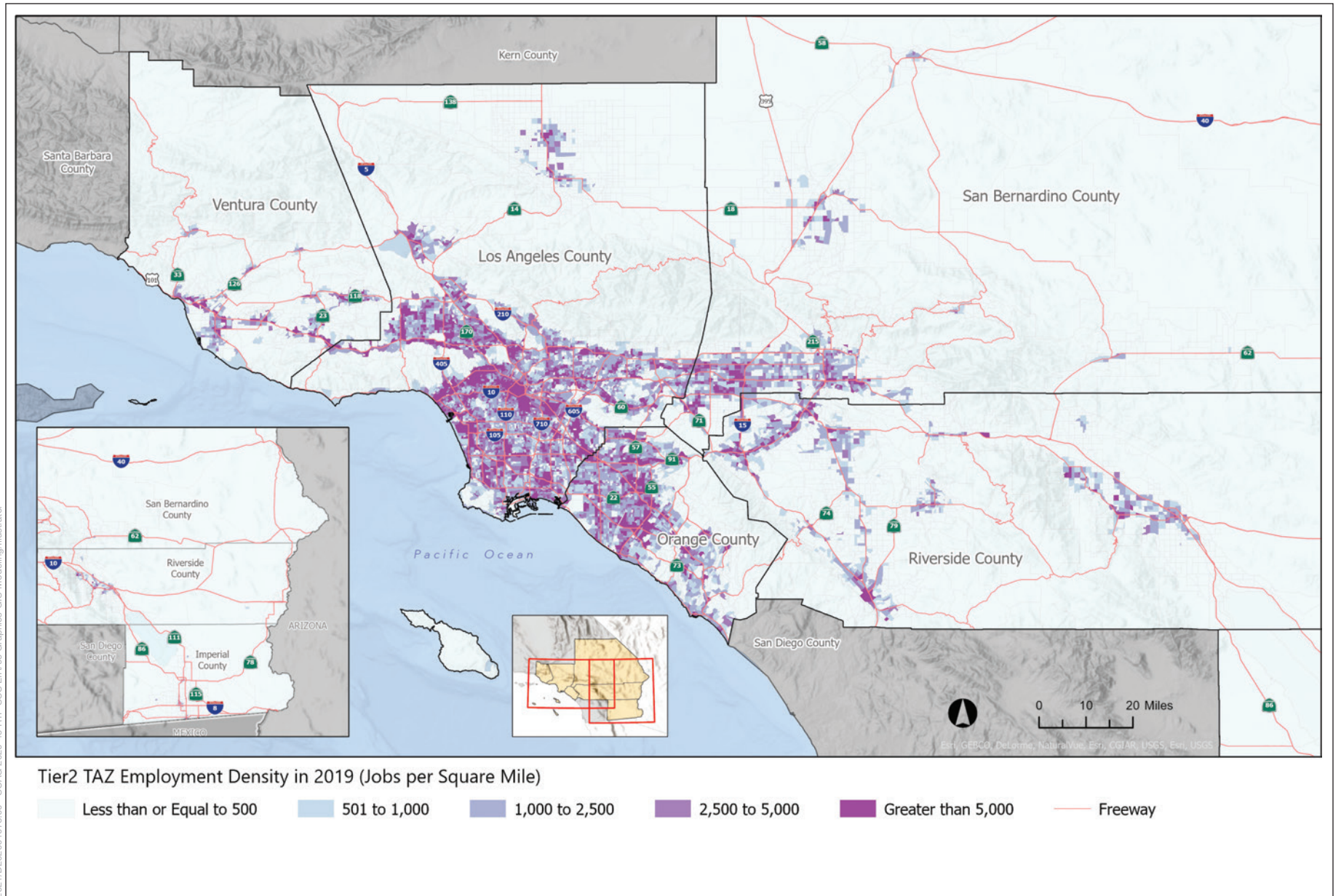
LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to the displacement of substantial numbers of existing people or housing that may necessitate the construction of replacement housing elsewhere, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use

authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to inducing substantial unplanned population growth and displacement of substantial number of existing people or housing, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.



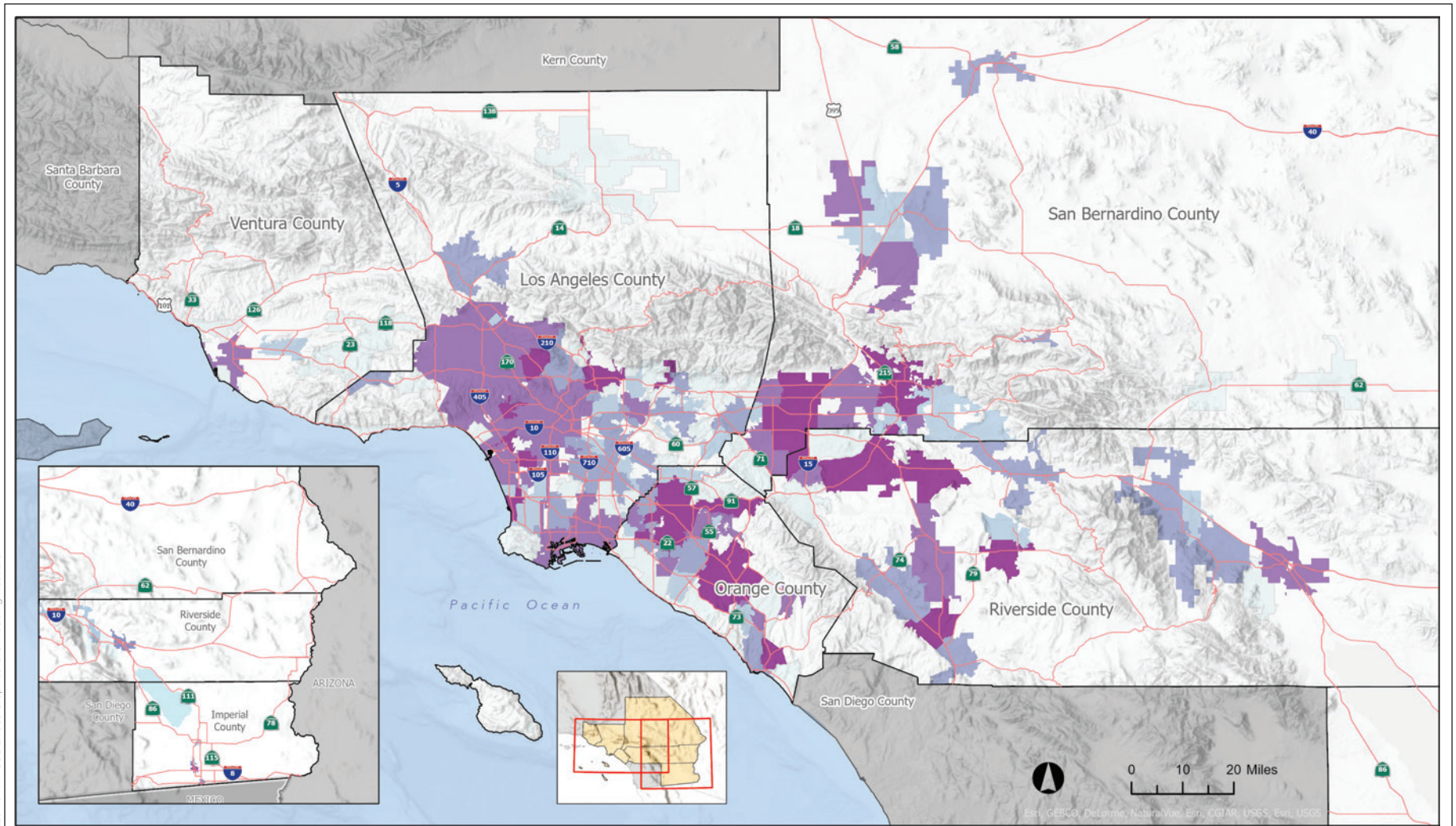
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SOURCE: SCAG, 2022

Connect SoCal 2024 PEIR

Map 3.14-1
Employment Density in the SCAG Region (2019)





Jurisdiction Employment Growth, 2019-2050 (Jobs per Square Mile)



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SOURCE: SCAG, 2022

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Map 3.14-3
Jurisdiction Employment Growth 2019-2050



3.14.4 SOURCES

- Assembly Bill 976. Coastal resources: California Coastal Act of 1976: enforcement: penalties.
- Bureau of Labor Statistics. 2020. The Employment Situation—December 2019. https://www.bls.gov/news.release/archives/empsit_01102020.htm. Accessed May 12, 2023.
- California Air Resources Board (CARB). 2022. 2022 Scoping Plan, Appendix D. <https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp-appendix-d-local-actions.pdf>.
- California Coastal Commission. 2019. Local Coastal Programs. <https://www.coastal.ca.gov/lcps.html>. Accessed February 14, 2023.
- California Code of Regulations. Title 23: Highways, Part 450 – Planning and Assistance and Standards.
- California Employment Development Department (CA EDD). 2019. REPORT 400 C – Monthly Labor Force Data for Counties – Annual Average 2019 – Revised. <https://labormarketinfo.edd.ca.gov/file/lfhist/19aacou.pdf>.
- CA EDD. 2020. California’s unemployment holds at record low 3.9 percent in December. https://edd.ca.gov/EPIserver/CMS/Content/es/about_edd/news_releases_and_announcements/unemployment-january-2020_7876_24532/?epieditmode=False?epieditmode=False. Accessed May 12, 2023.
- County of Imperial. 2022. *2021–2029 Housing Element*. https://www.icpds.com/assets/IMPERIALCO_Housing-Element_Adopted-2.8.22.pdf. Accessed February 14, 2023.
- County of Los Angeles. 2022. *Revised Los Angeles County Housing Element (2021–2029)*. https://planning.lacounty.gov/assets/upl/project/housing_revised_housing-element-20220517.pdf. Accessed February 14, 2023.
- County of Orange. 2022. *2021–2029 Housing Element Update*. <https://ocds.ocpublicworks.com/sites/ocpwoocds/files/2022-12/OC%20Housing%20Element%20-%20Fourth%20Draft%20-%20Submittal%20to%20HCD%20-%20December%202022.pdf>. Accessed February 14, 2023.
- County of Riverside. 2021. *2021–2029 Housing Element*. https://planning.rctlma.org/Portals/14/genplan/2021/elements/Ch08_Housing_9.28.21.pdf. Accessed February 14, 2023.
- County of San Bernardino. 2022. *2021–2029 Housing Element*. http://www.sbcounty.gov/uploads/LUS/HousingPlans/CWP_PolicyPlan_HousingElement_2021-2029_Adopted.pdf. Accessed February 14, 2023.
- County of Ventura. 2021. *2021–2029 Housing Element*. https://vcrma.org/docs/images/pdf/planning/plans/VCGP_Chapter_3_Housing_Element.pdf. Accessed February 14, 2023.
- Federal Highway Administration (FHWA). 2022. Fixing America’s Surface Transportation Act. <https://www.fhwa.dot.gov/fastact/>. Accessed February 10, 2023.
- Federal Register. 1965. Housing and Urban Development Department. <https://www.federalregister.gov/agencies/housing-and-urban-development-department>. Accessed February 10, 2023.
- Government Code. Title 7, Division 1, Chapter 3, Article 10.6: Housing Elements [65580–65589.11].
- IPUMS USA. 2023. U.S. Census Data for Social, Economic, and Health Research. <https://usa.ipums.org/usa/>. Accessed October 26, 2023.
- Los Angeles Law Library. 2008. Text of Proposed Laws, Proposition 99. http://www.lalawlibrary.org/pdfs/PROP_0608_99.pdf.

- Porterville Citizens for Responsible Hillside Dev. v City of Porterville* (2007). 2007. 157 CA4th 885, 903 (claimed impact of new homes on existing home values is economic impact).
- Senate Bill No. 2, Chapter 633. Local planning.
- Senate Bill No. 535, Chapter 830. California Global Warming Solutions Act of 2006: Greenhouse Gas Reduction Fund.
- Senate Bill No. 375, Chapter 728. Transportation planning: travel demand models: sustainable communities strategy: environmental review.
- Southern California Association of Governments (SCAG). 2016. 2016 RTP/SCS Program Draft Environmental Impact Report.
- SCAG. 2020. Connect SoCal Program Draft Environmental Impact Report. <https://scag.ca.gov/certified-2020-peir>. Accessed September 6, 2023.
- Southern California Association of Governments (SCAG). 2021a. 2021 Local Profiles Dataset. https://scag.ca.gov/sites/main/files/file-attachments/2021_local_profiles_dataset.xlsx?1661892901. Accessed August 24, 2023.
- SCAG. 2021b. 6th Cycle Final RHNA Allocation Plan. [6th Cycle Final RHNA Allocation Plan 070121.xlsx](#). Accessed March 14, 2023.
- SCAG. 2023a. Connect SoCal 2024 Demographics and Growth Forecast. Draft Technical Report.
- SCAG. 2023b. Connect SoCal 2024 Housing. Draft Technical Report.
- SCAG. 2023c. Regional Housing Needs Assessment. <https://scag.ca.gov/rhna>. Accessed March 14, 2023.
- SCAG. 2023d. Connect SoCal 2024 Scenario Planning Model -Scenarios Summary.
- SCAG. 2023e. Connect SoCal 2024 Transportation Modeling Data.
- U.S. Census Bureau. 2010. California: 2010 Population and Housing Unit Counts. <https://www2.census.gov/library/publications/decennial/2010/cph-2/cph-2-6.pdf>.
- U.S. Census Bureau. 2012. United States Summary: 2010 Population and Housing Unit Counts. <https://www2.census.gov/library/publications/decennial/2010/cph-2/cph-2-1.pdf>.
- U.S. Census Bureau. 2019. Poverty Status in the Past 12 Months (2019). <https://data.census.gov/all>. Accessed May 11, 2023.
- U.S. Census Bureau. 2020. American Community Survey 1-year estimates (Table B17001, 2019). <https://www.census.gov/data/developers/data-sets/acs-1year.html>. Accessed October 26, 2023.
- U.S. Census Bureau. 2022. American Community Survey 1-year estimates (Table S1701, 2021). <https://www.census.gov/data/developers/data-sets/acs-1year.html>. Accessed October 26, 2023.
- United States Code. Title 42, Chapter 61: Uniform Relocation Assistance and Real Property Acquisition Policies for Federal and Federal Assisted Programs.

3.15 PUBLIC SERVICES

This section of the 2024 PEIR describes existing public services within the SCAG region, sets forth the regulatory framework that affect public services, and analyzes the potential impacts of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific reviews to reduce identified impacts as appropriate and feasible. This section addresses Public Services for fire protection, police services, schools and library services. Impacts related to parks are addressed in Section 3.16, *Recreation*. With respect to fire protection, additional considerations are addressed in Section 3.20, *Wildfire*, and emergency access and emergency response and evacuation plans are addressed in Section 3.9, *Hazards and Hazardous Materials*. Additional discussion of schools is provided in Sections 3.3, *Air Quality*, and 3.11, *Land Use and Planning*, of this 2024 PEIR.

3.15.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for public services follow:

- *County Offices of Emergency Services (OES)*: The County OESs provide emergency management and preparedness services to the unincorporated areas of the six counties within the SCAG region. Each OES is responsible for alerting and notifying appropriate agencies when disaster strikes, coordinating all agencies that respond, ensuring resources are available and mobilized in times of disaster, developing plans and procedures for response to and recovery from disasters, and developing and providing preparedness materials for the public. These responders include fire departments, police and sheriff department, hospitals, ambulance services, and transportation agencies. Coordination among public and private agencies within various cities and counties makes the most use of all available resources in the event of any emergency. While each city and county have their own security procedures, the policies are generally similar. Mutual Aid agreements between cities, counties, and private organizations help to maximize resources and reduce the human suffering associated with disaster situations.
- *Federal Emergency Management Agency (FEMA)*: FEMA is a federal agency that has served the United States (U.S) since 1979 to support U.S. citizens and first responders to ensure that the nation works together to build, sustain, and improve its capacity to prepare for, protect against, respond to, recover from, and mitigate all hazards (FEMA 2023a). FEMA coordinates the federal government's role in preparing for, preventing, mitigating the effects of, responding to, and recovering from all domestic disasters, whether natural or man-made, including acts of terror. FEMA is part of the U.S. Department of Homeland Security.
- *California Governor's Office of Emergency Services (Cal OES)*: Cal OES is the state agency charged with the responsibility to assist local government in preparing for and responding to any type of natural or manmade disaster in California. This includes responding, directing, and coordinating state and federal resources and mutual aid assets and supporting communities across the State. Cal OES serves as the state's overall coordinator and agent to secure federal government resources through the FEMA (Cal OES 2023a).
- *Joint Field Office (JFO)*: A temporary Federal facility established locally to provide a central point for federal, state, local, and tribal executives with responsibility for incident oversight, direction, and/or assistance to effectively coordinate protection, prevention, preparedness, response, and recovery actions. In the event of multiple incidents, multiple JFOs may be established at the discretion of the Secretary of Homeland Security.

- *Master Mutual Aid Agreements (MAA)*: FEMA encourages federal, state, local, and tribal governments to enter into agreements to assist one another. Immediately following the 1994 Northridge earthquake, city and county emergency managers in the Cal OES coastal, southern, and inland regions developed a coordinated emergency management concept called the Emergency Managers Mutual Aid (EMMA) system. The purpose of EMMA is to support disaster operations in affected jurisdictions by providing professional emergency management personnel from unaffected areas to support local jurisdictions, Operational Areas, and regional emergency operations during proclaimed emergencies; providing a system, including an organization, information, and forms necessary to coordinate the formal request, reception, assignment, and training of assigned personnel; establishing a structure to maintain this document (the Emergency Managers Mutual Aid Plan) and its procedures; providing for the coordination of training for emergency managers, including Standardized Emergency Management System (SEMS/NIMS) training, emergency management course work, exercises, and disaster response procedures; and promoting professionalism in emergency management (Cal OES 2019).
- *National Incident Management System/Standardized Emergency Management System (NIMS)*: The NIMS is a tool for states, counties, and local jurisdictions to respond to catastrophic events through better communication and coordination. NIMS provides a consistent nationwide template to enable federal, state, local, and tribal governments and private sector and nongovernmental organizations to work together effectively and efficiently to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity, including acts of catastrophic terrorism (FEMA 2017).
- *National Preparedness System*: The National Preparedness System, also a part of FEMA, is a part of NIM. The system is intended to be used by individuals, families, communities, the private and nonprofit sectors, faith-based organizations, and local, state, tribal, territorial, insular area, and federal governments to achieve the National Preparedness Goal (FEMA 2016).
- *Transportation Management Centers (TMCs)*: The California Department of Transportation (Caltrans), in conjunction with the California Highway Patrol (CHP), has created TMCs to rapidly detect and respond to incidents while managing the resulting congestion. For the SCAG region, Caltrans Districts 7, 8, 11, and 12 all have TMCs (Caltrans 2023).
- *Transportation Security Administration (TSA)*: The TSA is a component of the DHS and is responsible for security of the nation's transportation systems. The TSA is responsible for security at airports in the SCAG region. With state, local, and regional partners, the TSA oversees security for highways, railroads, buses, mass transit systems, and ports (TSA 2023). A vast majority of its resources are dedicated to aviation security and is primarily tasked with screening passengers and baggage.
- *Unified Coordination Group (UCG)*: Unified Coordination Group (UCG) is a temporary federal multi-agency coordination center established locally to facilitate field-level domestic incident management activities related to prevention, preparedness, response, and recovery when activated by the Secretary of Homeland Security. The JFO provides a central location for coordination of federal, state, local, tribal, nongovernmental, and private-sector organizations with primary responsibility for activities associated with threat response and incident support (FEMA 2023b).
- *United States Coast Guard (USCG)*: The Coast Guard is both a federal law enforcement agency and a military force that operates as part of the DHS in times of peace to enforce the nation's laws at sea, protecting the marine environment, guarding the nation's vast coastlines and ports, and performing vital lifesaving missions. In times of war, or at the direction of the president, the Coast Guard serves as part of the Navy Department, defending the nation against terrorism and foreign threats. The over 50,000 members of the Coast Guard

operate a multi-mission, interoperable fleet of 259 Cutters, 200 fixed and rotary-wing aircraft, and over 1,600 boats (USCG 2023)

- *United States Department of Defense (DOD)*: In the case of a large-scale emergency, the DOD is authorized to provide resources when response and recovery requirements are beyond the capabilities of civilian authorities and these efforts do not interfere with the DOD's core mission or ability to respond to operational contingencies. Requests for Defense Support to Civilian Authorities (DSCA) are made through the local, county, and state authorities as a request for assistance to the federal coordinating official in the appropriate lead federal agency and is normally accompanied by or submitted after a request from the governor for a disaster declaration from the president. The California National Guard may be activated as part of the DSCA and can provide law enforcement support, crisis management, and consequence management services. Activation of the National Guard for local support during emergencies is done by the governor via Cal OES (USAR 2023).
- *United States Department of Homeland Security (DHS)*: The DHS was established after the September 11, 2001, terrorist attacks as an office to oversee and coordinate a comprehensive national strategy to safeguard the country against terrorism and respond to any future attacks (DHS 2023). In 2003, DHS formally became a Cabinet-level department to further coordinate and unify national homeland security efforts. The vision of DHS is to ensure a homeland that is safe, secure, and resilient against terrorism and other hazards.

3.15.1.1 FIRE PROTECTION

Fire protection within the SCAG region includes a variety of federal, state, county, city and local fire protection agencies. The primary fire protection services occur at the community level with city and county fire departments and fire protection districts providing this service. Also serving as fire protection services are a variety of volunteer fire companies. In addition, there are fire protection agencies that provide fire protection services within state and federal lands. These agencies include but are not limited to federal fire agencies (Bureau of Land Management [BLM], National Park Service, National Forest Service, Department of Defense, etc.), state forestry department, airport, and harbor fire departments, and in some instances, business sponsored fire departments (i.e., refineries). Each agency provides fire protection services within their own area of responsibility, but they can call upon other agencies for fire support through mutual aid agreements. Generally, fire departments take proactive and preventative measures to provide fire suppression and emergency response services for all private, institutional, and public facilities within their area of responsibility.

WILDFIRES

Section 3.20, *Wildfire*, discusses in more detail the wildfire hazards and existing conditions within the SCAG region, as well as identifies the regulatory framework with respect to regulations that address wildfire and evaluates the significance of impacts that could result from the proposed Plan.

The wildfire season in southern California typically lasts six to eight months from summer to fall (although climate change has resulted in drier, hotter weather and longer fire seasons). Hazards arise from a combination of hot weather, the accumulation of dried vegetation, and low moisture content in the air. These conditions, if coupled with high winds and drought, can compound the risk and potential impact of a fire. Fires are usually classified as either urban fires or wildland fires. However, growth into rural areas has increased the number of people living in heavily vegetated areas where wildlands meet urban development, also referred to as the wildland-urban interface. This trend is spawning a third classification of fires: the urban wildfire. A fire along the wildland-urban interface (as was seen recently in Ventura and Los Angeles counties with the Woolsey Fire) can result in major losses of property and structures.

Three major factors sustain wildfires and allow for predictions of a given area's potential to burn. These factors include fuel, topography, and weather. Certain areas in and surrounding the region are extremely vulnerable to fires because of dense, grassy vegetation combined with a growing number of structures being built near and within rural areas. The California Department of Forestry and Fire Protection (CAL FIRE) has developed maps indicating fire hazard severity zones in each county across California.

URBAN FIRES

Urban fires occur in developed areas and include structural, chemical, and vehicular-related fires. Structural fires can result from mechanical failures, accidental occurrences, or arson. The building materials used in various structures can limit or be a catalyst for the spread of structural fires. Although structural fires can occur in any developed area, non-sprinklered commercial buildings in downtown areas and dwelling units in lower socio-economic areas appear to be more susceptible to fires, namely due to the age of the structures. Older structures are more susceptible to fire because they were built under older building standards and fire codes, are made from non-fire-resistive construction materials, and do not have internal sprinklers or other fire safety systems.

URBAN-WILDLAND FIRE

CAL FIRE has compiled a list of cities with Very High Fire Hazard Severity zones and has developed recommendations to local jurisdictions for proper fire management within those areas. Within the SCAG region, Los Angeles County has 38 cities with such zones, Riverside County has 22, Orange County has 20, San Bernardino County has 15 and Ventura County has eight cities that CAL FIRE has recommended establishing Very High Fire Hazard Severity zones (CAL FIRE 2022).

FIRE PROTECTION AGENCIES

Fire suppression is the responsibility of various fire departments and districts, which often also employ paramedics for emergency medical services. The SCAG region has more than 100 county, city, or independent fire entities that provide fire prevention/suppression and emergency services throughout the area. Response times vary amongst the agencies; however, urban areas usually maintain a standard of around 6 minutes or less while response times in rural areas are around 10 minutes. County service covers unincorporated areas, independent fire districts, and municipalities that contract for fire protection and emergency services.

BUREAU OF LAND MANAGEMENT

The Bureau of Land Management (BLM) is a federal agency that manages the nation's subsurface mineral resources under the U.S. Department of the Interior. The land and minerals under BLM authority include, but are not limited to, forests, mountains, and rangelands.

BLM operates the Fire and Aviation program which works with state and field offices to provide a fire and aviation management program. BLM provides coordination with state offices to provide effective interagency activities and policy through the National Interagency Fire Center (NIFC) in Boise, Idaho. BLM's fire and aviation program has three organizational levels: (1) the national office which provides leadership and oversight, and develops policy, procedures and budgets for the fire and aviation program; (2) state offices which are responsible for coordinating policies and interagency activities within their state; and (3) field offices which are responsible for on-the-ground fire management and aviation activities, often partnering with other agencies to maximize rapid initial attack (BLM 2023).

BLM plays a primary role in the nation's wildland fire management efforts and undertakes a broad range of activities to protect the public, natural landscape, wildlife habitat, and recreational areas. BLM trains firefighters in fire suppression, preparedness, predictive services, vegetative fuels management, prescribed fire, community assistance and protection, and education (BLM 2023).

NATIONAL PARK SERVICE

The National Park Service (NPS), a federal agency under the U.S. Department of the Interior, helps manage wildland fires in designated National Parks, such as Joshua Tree National Park. The NPS finds wildfires beneficial to ecosystems, but NPS fire staff are trained and equipped to aggressively put out an unwanted fire when it is necessary for resource protection or public safety (NPS 2018).

U.S. FOREST SERVICE

The National Forest Service (USFS) is a federal agency under the U.S. Department of Agriculture. Similarly, to the National Park Service, the USFS works with other agencies to manage wildland fires that threaten lives, homes, communities, and natural and cultural resources (USDA 2023). The USFS aids with fire protective services in wildland areas, including Angeles National Forest.

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION

CAL FIRE is an emergency response and resource protection department that protects lives, property, and natural resources from fire; responds to emergencies of all types, and protects and preserves timberlands, wildlands, and urban forests throughout the State of California, through cooperative efforts via contracts and agreements between state, federal, and local jurisdictions to respond to emergencies including wildland and structure fires, earthquakes, floods, hazardous material spills, medical aids, and terrorist attacks (CAL FIRE 2023). CAL FIRE provides fire protection services to California's privately-owned wildlands and works in collaboration with counties and local governments to provide emergency services. CAL FIRE responds to medical aids; hazardous material spills; swiftwater rescues; search and rescue missions; civil disturbances; train wrecks; floods; earthquakes and more (CAL FIRE 2018).

U.S. OFFICE OF EMERGENCY SERVICES

The U.S. Office of Emergency Services (OES) leads the Department of the Interior's emergency management efforts. The OES develops guidelines for emergency preparedness, response, recovery, and mitigation to natural, man-made, and technological disasters. The State of California has its own OES—Cal OES—which allows for similar efforts of emergency management on a relatively smaller scale.

CAL OES has three administrative regions, Inland, Coastal, and Southern. All of the counties within the SCAG region are located within the Southern Region. Cal OES coordinates disaster response between state agencies and local governments, and offers guidance and assistance for emergency preparedness, response, and recovery. In addition, Cal OES manages Emergency Operations Centers (EOC) in various counties across the state and assists local governments in developing emergency plans (Cal OES 2023b).

SCAG COUNTY AGENCIES

IMPERIAL COUNTY

Fire protection in Imperial County is managed by the Imperial County Fire Department and OES. The County Fire Department maintains nine stations; these stations are located in the communities of Heber, Seeley, Ocotillo, Palo Verde, Niland, Winterhaven, Salton City, and the City of the Imperial (CIFDOES 2023). Additionally, it contracts fire service with the cities of Brawley, Calipatria, Holtville, Westmorland, Salton City and Salton Sea Beach. Each County station is staffed with a captain, firefighter, and reserve firefighter, and has at least a Type I engine. Average response times are between 8 and 10 minutes (CIPDS 1992). In addition, the OES provides emergency management services for the County/Operational Area including its seven cities/towns and special districts (CIFDOES 2023). Six cities in the county maintain their own fire departments (FireDepartment.org 2023).

LOS ANGELES COUNTY

The Los Angeles County Fire Department (LACFD) serves unincorporated areas of the County as well as 60 cities. In addition to emergency response, the LACFD also conducts field and business inspections, maintains prevention data systems, reviews new plans and projects, and even serves filming and special events industries. The County is divided into three regions, further split into nine divisions and 22 battalions (LACFD 2021). Response time goals for LACFD are 5 minutes or less for urban areas, 8 minutes for suburban areas, and 12 minutes for rural areas. In addition to the County Fire Department, 20 cities in the County maintain their own fire departments (CLADRP 2014).

ORANGE COUNTY

The Orange County Fire Authority (OCFA) was created in 1995, under a Joint Power Authority established among the cities of Buena Park, Cypress, Dana Point, Irvine, Laguna Hills, Laguna Niguel, Lake Forest, La Palma, Los Alamos, Mission Viejo, Placentia, San Clemente, San Juan Capistrano, Seal beach, Stanton, Tustin, Villa Park, and Yorba Linda to provide fire prevention and emergency services to them and unincorporated areas within the County. The cities of Westminster, Laguna Woods, Rancho Santa Margarita, and Aliso Viejo also contract with the OCFA. There are 78 OCFA stations across the County and 12 cities maintain their own departments (OCFA 2023; County of Orange 2023).

RIVERSIDE COUNTY

Riverside County contracts with CAL FIRE for management of the Riverside County Fire Department (RCFD). The RCFD operates 94 fire stations across six service areas including 21 cities, although more than half of the stations are located in unincorporated areas. Additionally, the CAL FIRE Riverside Unit serves portions of San Diego and Orange counties and operates 20 partner city fire departments and one community services district (CSD) fire department within Riverside County (CRFD 2023). The RCFD also assists various cities and communities under mutual and automatic aid agreements (CRPD 2015).

SAN BERNARDINO COUNTY

The San Bernardino County Fire Protection District (SBCFPD) has a service area of more than 19,000 square miles and provides fire services to all 24 incorporated cities. The Fire Department maintains 55 active stations across five divisions and provides emergency response and fire protection and prevention services. The San Bernardino County Fire Protection District also manages hazardous waste programs, performs inspections and plan reviews, and assists with safety procedures at special events. The department is comprised of more than 1,000 personnel and maintains a variety of equipment such as boats, ambulances, Snow Cats, and a helicopter (SBCFPD 2022).

VENTURA COUNTY

The Ventura County Fire Protection District (VCFPD) provides fire prevention and suppression and rescue services. The VCFPD serves Camarillo, Moorpark, Ojai, Port Hueneme, Simi Valley, and Thousand Oaks, as well as the unincorporated regions, including 860 square miles of forest reserve. The VCFPD is divided into five battalion areas and operates 33 fire stations across the County (CVFD 2021). The goal for average response time for the District is under five minutes in urban areas and under seven minutes in rural areas (CVRMAPD 2005).

3.15.1.2 POLICE PROTECTION SERVICES

Law enforcement is provided by a variety of federal, state, county, city, and other local law enforcement agencies. Primary law enforcement is at the community level, with city police and County Sheriff's departments providing this service. Additionally, there are more specialized law enforcement agencies that assist in law enforcement at the community or resource level. These specialized agencies include but are not limited to California Highway Patrol (CHP), School Police, Airport Police, Transit Police, Park Rangers (federal, state, county, and city), and a wide variety of federal agencies (FBI, ATF, etc.). In general, law enforcement agencies provide first response to all emergencies, perform preliminary investigations, and provide basic patrol services in their service area.

CALIFORNIA HIGHWAY PATROL

CHP is a statewide law enforcement agency with jurisdiction over all highways and city roads. CHP officers are responsible for responding to car crashes, disabled vehicles, and other impediments to traffic flow. Although its primary mission is related to transportation, the CHP has broad enforcement power over state law.

IMPERIAL COUNTY

Imperial County receives police protection from the Imperial County Sheriff's Office (ICSO), headquartered in El Centro. Substations are located in Niland, Ocotillo, Palo Verde, Salton City, and Winterhaven. The ICSO employs approximately 125 sworn officers and 95 personnel for an officer-to-resident ratio of about 1.5 sworn officers per 1,000 persons. The average response time for priority and non-priority calls is approximately 28 minutes as of September 2023 (ICSO 2023). Additionally, each city in the county maintains its own police departments to serve their incorporated areas.

LOS ANGELES COUNTY

Law enforcement in Los Angeles County is provided by the Los Angeles Sheriff's Department (LASD), which is headquartered in the City of Los Angeles. With nearly 18,000 employees, LASD is the largest sheriff's department in the U.S. LASD provides general law enforcement services to unincorporated Los Angeles County as well as contracted cities. Of the County's 88 municipalities, 42 contract with LASD for local police protection. LASD also provides services to 216 facilities, hospitals, and clinics, nine community college, the Metropolitan Transit Authority, and 37 Superior Courts. LASD desired officer-to-population ratio is one officer per 1,000 residents. The LASD's goal response time for emergency calls is 10 minutes or less (CLADRP 2015).

ORANGE COUNTY

The Orange County Sheriff-Coroner Department (OCSO) provides police services to unincorporated areas of Orange County as well as contracting cities of Aliso Viejo, Dana Point, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Rancho Santa Margarita, San Clemente, San Juan Capistrano, Stanton, and Villa Park.

The OCSD headquarters are located in the City of Santa Ana. The department is split into five divisions: North, South, and West Operations Divisions, the Airport Division, and the Harbor Patrol division. The OCSD is a large, multi-faceted law enforcement agency served by approximately 3,500 sworn and professional staff members and over 800 reserve personnel (OCSD 2021). The OCSD provides first responder patrol services and hazardous devices services to all law enforcement agencies in the County.

RIVERSIDE COUNTY

The Riverside County Sheriff's Department provides community policing and operates the County's correctional facilities. The Department is headquartered in the City of Riverside and provides services to the unincorporated areas of the County as well as the cities of Calimesa, Canyon Lake, Coachella, Eastvale, Indian Wells, Jurupa Valley, Lake Elsinore, La Quinta, Menifee, Moreno Valley, Morongo Indian Reserve, Norco, Palm Desert, Perris, Rancho Mirage, San Jacinto, Temecula, Wildomar. The Department employs approximately 4,500 people, roughly 2,300 of which are sworn personnel. There are nine Sheriff Department stations throughout the County and five adult correction or detention centers. The Department has established a staffing requirement of one sworn officer per 1,000 population (CRPD 2015).

SAN BERNARDINO COUNTY

The San Bernardino County Sheriff's Department (SBCSD) polices the largest geographical county in the nation. It serves over 2.1 million residents across 15 patrol stations. SBCSD employs over 3,800 employees and utilizes over 1,800 volunteers. The SBCSD also maintains three correctional facilities: the West Valley Detention Center in Rancho Cucamonga; the Glen Helen Rehabilitation Center, a two unit, male and female-inmate facility in Devore; and the Central Rehabilitation Center that houses federal inmates for the United States Marshall Service located in the City of San Bernardino (CSBSD 2017).

VENTURA COUNTY

The Ventura County Sheriff's Office provides primary law enforcement services in unincorporated areas of Ventura County and the contract cities of Ojai, Thousand Oaks, Camarillo, Moorpark and Fillmore. This jurisdiction makes up almost 95 percent of the County's land area and approximately half of the population. The Department is divided into seven divisions, based on location, and is headquartered at 800 South Victoria Avenue in the City of Ventura. The Sheriff's Office employees approximately 1,180 personnel, including allocations for more than 726 sworn positions (CVSD 2020).

3.15.1.3 SCHOOL SERVICES

Local jurisdictions within the SCAG region provide public education facilities and services to residents including elementary schools, middle schools, secondary schools, postsecondary schools, and colleges/universities, as well as special and adult education.

CALIFORNIA DEPARTMENT OF EDUCATION

The California Department of Education (CDE) oversees the state's public school system, which provides education to more than 6 million children and young adults in more than 10,000 schools. CDE and the State Superintendent of Public Instruction are responsible for enforcing education law and regulations; and for continuing to reform

and improve public elementary school programs, secondary school programs, adult education, some preschool programs, and childcare programs.

Although the California public school system is subject to state requirements, the CDE relies on local control for the management of school districts. In allocating resources among the schools of the district, school district governing boards and district administrators must follow the law, but also set the educational priorities for their schools. As of the 2022–2023 school year, there were more than 1,080 school districts in California (CDE 2023a).

EDUCATIONAL FACILITIES

According to the California Department of Education (CDE), there are approximately three million students enrolled in schools in the SCAG region, ranging from kindergarten to 12th grade, with over 141,000 teachers (see **Table 3.15.1-1, Kindergarten through Grade 12 Enrollment and Teachers in the SCAG Region for the 2017–2018 School Year**). The number of public K–12 school districts range from a low of 19 in Imperial County to a high of 80 in Los Angeles County, with a corresponding range of schools from a low of 74 in Imperial County to over 2,300 in Los Angeles County (see **Table 3.15.1-2, Public and Private Schools in the SCAG Region**). The CDE does not currently provide enrollment data at the preschool level, and this data is not reflected in TABLE 3.15.1-1. Three counties have University of California campuses, and all but one county have one or more California State University campuses (see Table 3.15.1-2).

TABLE 3.15.1-1 Kindergarten through Grade 12 Enrollment and Teachers
in the SCAG Region for the 2021–2022 School Year

COUNTY	ENROLLMENT K-12	TEACHERS
Imperial	36,238	1,689
Los Angeles	1,336,558	62,980
Orange	448,729	19,312
Riverside	420,687	18,479
San Bernardino	398,648	17,972
Ventura	128,227	5,895
SCAG Region	2,739,087	126,327
California	5,892,240	274,759

Source: CDE 2023b

TABLE 3.15.1-2 Public and Private Schools in the SCAG Region for the 2021–2022 School Year

COUNTY	PUBLIC SCHOOLS ^A		UC SYSTEM ^B	CAL STATE SYSTEM ^C	COMMUNITY COLLEGE DISTRICTS ^D	PRIVATE SCHOOLS (ACTIVE)
	DISTRICTS	SCHOOLS				K-12
Imperial	18	77	—	—	1	10
Los Angeles	80	2,293	1	5	13	866
Orange	28	639	1	1	4	284
Riverside	23	542	1	—	5	136
San Bernardino	33	592	—	1	8	143
Ventura	21	227	—	1	2	79
SCAG Total	203	4,370	3	8	33	1,516

Sources: a. CDE 2023b
b. University of California 2023
c. CSU 2023
d. CCC 2023

IMPERIAL COUNTY

Imperial County has 18 school districts, 77 public schools, 10 private schools, four charter academies, and a community college, Imperial Valley College (CDE 2023b). Enrollment within the county peaked in school year 2017–2018 and has since declined. Within the County, 11 school districts have recently passed bond measures that will support new gymnasiums, classrooms, science labs, swimming pools, and three entirely new schools (ICOE 2020). Additionally, San Diego State University has a satellite campus in Imperial County, located in Calexico.

LOS ANGELES COUNTY

Los Angeles County Office of Education is the largest regional education agency in the U.S. and serves as an intermediary between the local school districts and the California Department of Education. The County is served by 80 public school districts, 2,293 public schools, 866 private schools, and 13 community college districts (CLAOE 2023; CDE 2023b). As with all of California, the districts operate independently of the County government and elected governing school boards are responsible for budgeting and decision-making.

ORANGE COUNTY

The Orange County Department of Education is comprised of 28 K–12 school districts, four community college districts, one alternative school, and a special education school. There are more than 639 public schools serving approximately 450,000 students (CODE 2023; CD 2023b). Although almost all of the Orange County schools are experiencing growth, the fastest growing districts are within South County: Saddleback Valley Unified School District and Capistrano Unified School District. The Orange County Department of Education also promotes a childcare program, offering before- and after school care for children of working parents, as well as youth and teen programs (CDE 2023b).

RIVERSIDE COUNTY

Within Riverside County, the Riverside County Office of Education (RCOE) provides educational and administrative support services to the 23 school districts and nearly 420,000 students living in the County, including five

community college districts (CDE 2023b). Beyond acting as an intermediary between the State and local school districts, the RCOE also supports or directly provides a variety of specialized needs, such as Special Education for the severely handicapped, Head Start, Migrant Education, Alternative Education through independent study, Community Schools and Juvenile Court Schools and Career Technical Education programs designed to teach workforce skills aiding future employment. The RCOE reports 542 public school sites, including 20 charter schools, and employs approximately 18,500 teachers and non-teaching school employees (CDE 2023b).

SAN BERNARDINO COUNTY

The San Bernardino County Superintendent of Schools manages approximately 400,000 students across more than 592 public schools in 33 districts and eight community college districts (CDE 2023b). The County also has eight Special Education Local Plan Areas, and three regional occupational programs (CDE 2023c), (CDE 2023d). The County Board of Supervisors exercises direct control over the County School System, which is under the jurisdiction of the State Board of Education.

VENTURA COUNTY

The Ventura County Office of Education (VCOE) oversees the County's 21 public school districts, which serve nearly 128,000 K–12 students, as well as two community college districts (CDE 2023b). The VCOE also promotes court and community schools, as well as special education facilities. The primary role of the office is to promote quality educational services to all students by providing leadership, support, assistance, and coordination to school districts and County operated programs through the provisions of administrative, educational, fiscal, and clerical services. In addition, the District provides professional development opportunities for teaching staff and hosts countywide academic competitions including the spelling bee, mock trial, and academic decathlon (CVOE 2023).

3.15.1.4 LIBRARY SERVICES

AMERICAN LIBRARY ASSOCIATION

In the mid-1960s, the American Library Association (ALA) established library standards for public libraries. The ALA recommends service criteria of 0.5 square feet of library space and 2.5 volumes per capita. Many jurisdictions have not identified individual service criteria and utilize the ALA recommendations to meet the demand for library services in an area.

IMPERIAL COUNTY

The County of the Imperial Free Library was founded in 1912 and serves county residents in unincorporated areas, as well as in the cities of Calipatria, Holtville, and Westmorland. There are currently four branches located in Salton City, Calipatria, Heber, and Holtville. The library facilities offer services for children and teens, such as homework assistance, education games, and college scholarship databases (County of Imperial Library 2023). Many incorporated cities within Imperial County also provide library services.

LOS ANGELES COUNTY

The County of Los Angeles Public Library is one of the largest public library systems in the U.S. The system maintains 86 libraries across seven library planning areas. The system is equipped with 7.5 million books, in addition to magazines, newspapers, government publications, reference materials, audio-visual media, adult, teen and children's programs, downloadable e-books, computers, and internet access (County of Los Angeles Library

2023). The County guidelines regarding facilities are a minimum of 0.5 gross square feet and 2.75 items (books and other library materials) per capita (CLADRP 2015). Many incorporated cities within Los Angeles County also provide their own library services.

ORANGE COUNTY

The Orange County Public Library provides library service to the unincorporated areas of Orange County plus the cities of Aliso Viejo, Brea, Costa Mesa, Cypress, Dana Point, Fountain Valley, Garden Grove, Irvine, Laguna Beach, Laguna Hills, Laguna Niguel, Laguna Woods, Lake Forest, La Habra, La Palma, Los Alamitos, Rancho Santa Margarita, San Clemente, San Juan Capistrano, Seal Beach, Stanton, Tustin, Villa Park, and Westminster. The library system operates 33 branch library facilities, which contain approximately 2.5 million volumes, as well as periodicals, pamphlets, audio and video recordings, graphics, maps, etc. The library system has determined a service standard of 0.2 square feet of library space per capita and it strives to locate facilities within a three-mile radius of the communities they serve (COPWDS 2015). Within Orange County, many incorporated cities also provide library services.

RIVERSIDE COUNTY

Riverside County operates a library system of 35 libraries, two book mobiles, two museums, and a Creation Station. Library management offices are in the City of Riverside while the bookmobiles travel to serve unincorporated communities in the Coachella Valley and in western Riverside County (County of Riverside Library System 2023). Between 2021 and 2022, the county library had approximately 1.5 million visitors and issued 39,572 new library cards (County of Riverside Library System 2021). Many incorporated cities within Riverside County also provide library services.

SAN BERNARDINO COUNTY

The San Bernardino County Library System (SBCL) maintains 32 branches, two book mobiles, and has an administration building in the City of San Bernardino (CSBL 2023). The SBCL provides library resources such as books, internet, youth and adult literacy services, and braille institute services. The SBCL is available to unincorporated communities as well as 25 incorporated communities within the County. Combined, the branch facilities and administrative office total over 358,000 square feet of building area (CSBLUSD 2019). In addition, many incorporated cities within San Bernardino provide library services.

VENTURA COUNTY

The Ventura County Library maintains 12 community branches across the County. The various branches provide services such as book and document loans, computer labs, meeting rooms, homework assistance, and STEAM events. The County Library also provides an adult literacy program and tutors, as well as an eLibrary. The Ventura County Library maintains over 300,000 print books, as well as a variety of music, movies, TV shows, magazines, toys, instruments, and sketch books (County of Ventura Library 2023). In the Fiscal Year 2020–2021, the County Library circulated over 371,000 physical and digital items and issued over 18,700 library cards (County of Ventura Library, Undated). Library services are also provided by many incorporated cities within Ventura County.

3.15.2 REGULATORY FRAMEWORK

3.15.2.1 FIRE PROTECTION

FEDERAL

FEDERAL EMERGENCY MANAGEMENT ACT

FEMA's mission is to lead the effort to prepare the nation for all hazards and effectively manage federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation activities, trains first responders, and manages the National Flood Insurance Program and the U.S. Fire Administration (FEMA 2023a).

DISASTER MITIGATION ACT OF 2000

The Disaster Mitigation Act of 2000 (42 U.S.C. Section 5121 note) was signed into law to amend the Robert T. Stafford Disaster Relief Act of 1988 (42 U.S.C. Sections 5121–5207). Among other things, this new legislation reinforces the importance of pre-disaster infrastructure mitigation planning to reduce disaster losses nationwide and is aimed primarily at the control and streamlining of the administration of federal disaster relief and programs to promote mitigation activities. Some of the major provisions of the Act include:

- Funding pre-disaster mitigation activities;
- Developing experimental multi-hazard maps to better understand risk;
- Establishing state and local government infrastructure mitigation planning requirements;
- Defining how states can assume more responsibility in managing the Hazard Mitigation Grant Program (HMGP); and
- Adjusting ways in which management costs for projects are funded.

The mitigation planning provisions outlined in Section 322 of the Act establish performance-based standards for mitigation plans and requires states to have a public assistance program (Advance Infrastructure Mitigation—AIM) to develop county government plans. The consequence for counties that fail to develop an infrastructure mitigation plan is the chance of a reduced federal share of damage assistance from 75 percent to 25 percent if the damaged facility has been damaged on more than one occasion in the preceding ten-year period by the same type of event (FEMA 2000).

STATE

CALIFORNIA CONSTITUTION ARTICLE XIII SECTION 35

Section 35 of Article III of the California Constitution at subdivision (a)(2) provides: "The protection of the public safety is the first responsibility of local government and local officials have an obligation to give priority to the provision of adequate public safety services." Public safety services include fire protection. Section 35 of Article XIII of the California Constitution was adopted by the voters in 1993 under Proposition 172. Proposition 172 directed the proceeds of a 0.50 percent sales tax to be used exclusively for local public safety services. California Government Code (CGC) Sections 30051–30056 provide rules to implement Proposition 172. Section 30056 provides that cities are not allowed to spend less of their own financial resources on their combined public safety services in any given year compared to the 1992–93 fiscal year. Therefore, an agency is required to use Proposition

172 to supplement its local funds used on fire protection, as well as other public safety services. In *City of Hayward v. Trustee of California State University* (2015) 242 Cal.App.4th 833, the court found that, Section 35 of Article XIII of the California Constitution requires local jurisdictions to provide fire services and that it is reasonable to conclude that a lead agency will comply with that provision and ensure that public services are provided (see *City of Hayward v. Trustee of California State University* [2015] 242 Cal.App.4th 833, 847, stating “the city has a constitutional obligation to provide adequate fire protection services”).

CALIFORNIA FIRE CODE

Title 24, Part 9 of the California Code of Regulations (CCR) is the California Fire Code. Title 24, Part 9 of the CCR sets forth regulations regarding building standards, fire protection and notification systems, fire protection devices such as fire extinguishers and smoke alarms, high-rise building standards, and fire suppression training. The 2019 California Fire Code is the incorporation of the 2018 International Fire Code of the International Code Council with necessary California amendments. Development under the proposed project would be subject to applicable regulations of the California Fire Code (International Code Council 2019).

TITLE 8 CALIFORNIA CODE OF REGULATIONS SECTIONS 1270 AND 6773

In accordance with C.C.R., Title 8 Sections 1270 “Fire Prevention” and 6773 “Fire Protection and Fire Equipment,” the California Occupational Safety and Health Administration (Cal OSHA) has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hose sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of all firefighting and emergency medical equipment (CPIR 1994).

TITLE 14 CALIFORNIA CODE OF REGULATIONS DIVISION 1.5

These regulations constitute the basic wildland fire protection standards of the California Board of Forestry. They have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction, and development in state recreation areas. Title 14 regulates that the future design and construction of structures, subdivisions, and developments in a state recreation area shall provide for basic emergency access and perimeter wildfire protection measures (BFFP 2019).

UNIFORM FIRE CODE

The Uniform Fire Code (UFC) contains regulations relating to construction, maintenance, and use of buildings. Topics addressed in the code include fire department access, fire hydrants, automatic sprinkler systems, fire alarm systems, fire and explosion hazards safety, hazardous materials storage and use, provisions intended to protect and assist fire responders, industrial processes, and many other general and specialized fire-safety requirements for new and existing buildings and the surrounding premises.

CALIFORNIA HEALTH AND SAFETY CODE

State fire regulations are set forth in Sections 13000 et seq. of the California Health and Safety Code, which includes regulations for building standards (as set forth in the California Building Code), fire protection and notification systems, fire protection devices, and fire suppression training.

MUTUAL AID AGREEMENTS

The Emergency Managers Mutual Aid (EMMA) system is a collaborated effort between city and county emergency managers in the OES in the coastal, southern, and inland regions of the state. EMMA provides service in the emergency response and recovery efforts at the Southern Regional Emergency Operations Center (REOC), local Emergency Operations Centers (EOC), the Disaster Field Office (DFO), and community service centers. The purpose of EMMA is to support disaster operations in affected jurisdictions by providing professional emergency management personnel. In accordance with the Master Mutual Aid Agreement, local and state emergency managers have responded in support of each other under a variety of plans and procedures (Cal OES 2019).

GOVERNOR'S OFFICE OF EMERGENCY SERVICES REGULATORY PROGRAM

In 2009, the Governor's Office of Emergency Services (OES) merged with the Office of Homeland Security (OHS) under provisions set forth under Assembly Bill 38, creating the California Emergency Management Agency (Cal EMA) and authorizing it to prepare a Standard Emergency Management System (SEMS) program. In July 2013, Governor Brown eliminated Cal EMA and restored it to the Governor's Office, renaming it the California Governor's Office of Emergency Services (Cal OES), and merging it with the Office of Public Safety Communications (California Government Code, Title 2, Division 3, Part 6.5, Chapter 3: Public Safety Communications [15278–15283]).

Cal OES serves as the lead state agency for emergency management in the state. Cal EMA coordinates the state response to major emergencies in support of local government. The primary responsibility for emergency management resides with local government. Local jurisdictions first use their own resources and, as they are exhausted, obtain more from neighboring cities and special districts, the county in which they are located, and other counties throughout the state through the statewide mutual aid system. In California, the Standardized Emergency Management System (SEMS) provides the mechanism by which local government requests assistance. Cal OES serves as the lead agency for mobilizing the state's resources and obtaining federal resources; it also maintains oversight of the state's mutual aid system (California Government Code, Title 2, Division 1, Chapter 7, Article 5, Office of Emergency Services [8585–8589.7]).

Cal OES does not focus on security specifically, but rather more broadly on addressing all potential incidents that could impact the state, such as earthquakes, fires, floods, and terrorist attacks. Furthermore, Cal OES coordinates with federal agencies, such as the DHS and FEMA, as well as other state and local jurisdictions such as the CHP. California's vision, mission, and principles for emergency management, as well as goals and objectives are located in its 2017 Strategic Plan (Cal OES 2017).

2018 STRATEGIC FIRE PLAN FOR CALIFORNIA

Strategic Fire Plans in California have been developed since the 1930s by the Board of Forestry and Fire Protection and are periodically updated to guide CAL FIRE in providing statewide fire protection of state responsibility areas. The 2018 Plan, an update to the 2010 Plan, reflects the effects of climate change and other environmental changes in the State. The 2018 Plan focuses on fire prevention and suppression, natural resource management, and the collaboration of fire protection and emergency service providers (BFFP 2018).

COMMUNITY FACILITIES ACT AS AMENDED

The Community Facilities Act of 1982 (Section 53324 of the Government Code), also commonly known as the Mello-Roos Act, enables certain public agencies to designate a Mello-Roos Community Facilities District, which allows for the financing of public improvements and services. These include basic infrastructure, police protection,

fire protection, ambulance services, schools, parks, libraries, museums, and other cultural facilities. Mello-Roos Community Facilities Districts are usually created to finance improvements and services when no other funding sources are available and require a two-thirds majority vote of residents living within the proposed boundaries. They are used especially often (but not exclusively) in new development areas. Upon approval, a special tax lien is placed against each property in the district, and residents pay a special tax each year. This tax is not based on property value, but on formulas that consider physical characteristics such as square footage and structure size (California Tax Data, Undated).

LOCAL

COUNTY AND CITY GENERAL PLAN SAFETY ELEMENTS AND PUBLIC SERVICES AND FACILITIES ELEMENTS

In addition to federal and state regulations, cities and counties in the SCAG region also provide regulatory protection and advisement regarding public safety and associated public services. California law requires that a general plan include seven elements (land use, open space, conservation, housing, circulation, noise, and safety). Many jurisdictions incorporate policies related to public services into the Safety Element. Other jurisdictions choose to prepare a separate (optional) element dealing with public services and facilities issues.

California Code of Regulation Section 65302(g) specifically provides that a city may adopt the county's safety element if the county's element "is sufficiently detailed containing appropriate policies and programs for adoption by a city." The safety element must include methods to reduce the potential risk of fires, floods, earthquakes, landslides, and other hazards. Other locally relevant safety issues, such as emergency response, hazardous materials spills, and crime reduction, may also be included (California Government Code, Title 1, Division 1, Chapter 3, Article 5, Authority for and Scope of General Plan [65300–65303.4]). Some local jurisdictions have also incorporated their hazardous waste management plans into their safety elements. In addition, the safety element may be used to establish programs and policies that promote neighborhood, institutional, governmental, and business safety. The safety element must identify and map urban fringe and rural-residential areas that are prone to wildfires, adequate evacuation routes and peak load water supplies to reduce fire hazards. The policies of the safety element form the basis of adopted fire safe ordinances and strategic fire defense system zoning. Several jurisdictions have also adopted a Public Services and Facilities Element that establishes goals, objectives, policies and standards for public services and utilities, including emergency response standards.

The safety elements and public services and facilities elements of the county general plans within the six-county SCAG region establish the following fire protection service standards at a County level:

IMPERIAL COUNTY

Fire Response Standards. The Imperial County General Plan does not establish fire response standards for unincorporated areas (CIPDS 2015). Incorporated cities within Imperial County have established fire response standards. For instance, the City of El Centro's standard fire response time is approximately 7 to 10 minutes for emergencies and 10 to 15 minutes for non-emergencies (City of El Centro 2004).

LOS ANGELES COUNTY

Fire Response Standards. According to the Safety Element of the Santa Clarita Valley Area Plan, the Los Angeles County Fire Department (LACFD) has adopted a goal of responding to calls in urban areas within five minutes, in suburban areas within eight minutes, and in rural areas within 12 minutes (Policy S3.3.1) (CLADRP 2012). Incorporated cities within Los Angeles County have also established fire response standards.

ORANGE COUNTY

Fire Response Standards. In accordance with the Insurance Services Office (ISO) suggested standards, ultimate fire protection rating shall be maintained by Orange County's General Plan land use categories as follows: (1) ISO 3 for all urban developments including Residential (1C and 1B), Commercial (2A and 2B), Employment (3.0) and Public Facilities (4.0), which are within 5 miles from a fire station and less than 1,000 feet from a hydrant; and (2) ISO 4 for Rural Residential (1A), which are within 5 miles from a fire station and less than 100 feet from a hydrant. For areas greater than 5 miles or 1,000 feet, the ISO suggested standard is 9. Fire/paramedic facilities shall be sited in locations so as to assure efficient fire rescue and paramedic response for the service area. General criteria for site selection shall include (COPWDS 2015):

- Call response time: for 80 percent of the service area, first fire engine to reach the emergency scene within 5 minutes and paramedic to reach the scene within 8 minutes
- Land use compatibility: stations shall be located in commercial or industrial, or open space zones in order to avoid disturbance to residential areas wherever possible
- Street access: stations shall be located adjacent to arterial highways with controlled traffic signalization
- Incorporated cities within Orange County have also established fire response standards.

RIVERSIDE COUNTY

Fire Response Standards. According to the Riverside County Fire Department Strategic Plan 2009–2029, the Riverside County Fire Department considers National Fire Protection Association (NFPA) Standard 1710 as a guideline for fire station location methodology, which calls for an engine company within 4 minutes of travel time to fire incidents and EMS calls, and a full first-alarm group within 8 minutes, all for a minimum of 90 percent of annual incidents (Management Partners, Incorporated 2009). Incorporated cities within Riverside County have also established fire response standards.

SAN BERNARDINO COUNTY

Fire Response Standards. The San Bernardino County Fire Protection District established fire response standards for unincorporated areas, depending on service area type. For example, the response goal for urban areas is less than five minutes for the first arriving unit and for rural areas the response goal is 10 minutes for the first arriving unit (SBC LAFCO 2020). Incorporated cities within San Bernardino County have established fire response standards.

VENTURA COUNTY

Fire Response Standards. The Ventura County Fire Protection District maintains service contracts with ambulance services, which requires response time standards depending on service area type. Areas considered to be "Metropolitan or urban" areas generally have an 8-minute response time standard; "suburban" areas have a 20-minute standard; "semi-rural" areas have a 30-minute standard. "Very low population" or "wilderness" areas expect service as quickly as possible but do not have a defined response time standard (CVRMAPD 2020). Incorporated cities within Ventura County have also established fire response standards.

3.15.2.2 POLICE PROTECTION

STATE

All law enforcement agencies within the State of California are organized and operate in accordance with the applicable provisions of the California Penal Code. This code sets forth the authority, rules of conduct, and training for peace officers. Under state law, all sworn municipal and county officers are state peace officers.

CALIFORNIA CONSTITUTION, ARTICLE XIII SECTION 35

Refer to Section 3.15.2.1, *Fire Protection*, above, for a detailed discussion of this regulation.

CALIFORNIA PENAL CODE

All law enforcement agencies within the State of California are organized and operated in accordance with the applicable provisions of the California Penal Code. This code sets forth the authority, rules of conduct, and training for peace officers. Under state law, all sworn municipal and county officers are state peace officers.

CALIFORNIA EMERGENCY SERVICES ACT

For a detailed discussion of this regulation, refer to Section 3.15.2.1, *Fire Protection*

13 CALIFORNIA CODE REGULATIONS DIVISION 2

Division 2 of Title 13 of the California Code Regulations (CCR) governs the operations of the California Highway Patrol (CCR 2023).

CALIFORNIA VEHICLE CODE 21806 VC

California Vehicle Code 21806 VC states that drivers in California must yield to emergency vehicles when they are using sirens and have at least one visible red light. This is to ensure safe and timely access for emergency vehicles as they respond to emergency calls.

COMMUNITY FACILITIES ACT OF 1982, AS AMENDED

The Community Facilities Act of 1982 applies to police protection services. Refer to the discussion in Section 3.15.2.1, *Fire Protection*, for further information.

LOCAL

COUNTY AND CITIES GENERAL PLAN AND SAFETY ELEMENTS

Local planning policies related to public services and recreation are established in each local jurisdiction's general plan. In general, local jurisdictions have policies in place that state that public services must be provided at the same time as (or in advance of) the need for that service. In addition to these general policies, local jurisdictions may have more specific policies tailored to performance objectives, such as those outlined below.

Policies and strategies for police protection services generally include language pertaining to the development of law enforcement programs to reduce and control crime, the planning of future law enforcement facilities concurrently with growth, and the prevention of crime through education. Many jurisdictions also have specific

goals, such as maintaining a certain ratio of sworn officers to citizens, reducing response times, or reducing the overall number of crimes in the community.

Applicable County General Plan elements regarding police protection are identified below.

IMPERIAL COUNTY

Police Response Standards. The Imperial County General Plan does not establish police response standards for unincorporated areas (CIPDS 2015). However, individual incorporated jurisdictions have set standards, for instance, the El Centro Police Department's goal is to have 1.75 police officers per 1,000 population (City of El Centro 2004).

LOS ANGELES COUNTY

Police Response Standards. To effectively and efficiently fulfill all of its functions, the Sheriff's Department requires a staff level of one deputy sheriff per each 1,000 population (CLADRP 2015). Incorporated cities within Los Angeles County have also established police response standards.

ORANGE COUNTY

Police Response Standards. The adequacy of Sheriff service for land use proposals is determined through the Environmental Impact Report (EIR), Fiscal Impact Report (FIR), and Annual Monitoring Report (AMR) review processes (COPWDS 2015). Incorporated cities within Orange County have also established police response standards.

RIVERSIDE COUNTY

Police Response Standards. The Riverside County Sheriff's Department has established a goal of maintaining 1 sworn officer per 1,000 population (CRPD 2015). According to EIR No. 521 for the 2015 County's General Plan, the Riverside County Sheriff's Department has established the following criteria for its staffing requirements in unincorporated areas of Riverside County (CRPD 2015):

- One sworn officer per 1,000 population
- One supervisor and one support staff employee per seven officers
- One patrol vehicle per three sworn officers
- One school resource officer per school

Incorporated cities within Riverside County have also established police response standards. For instance, the City of Riverside endeavors to provide minimum response times of seven minutes on all Priority 1 calls and 12 minutes on all Priority 2 calls (Policy PS-7.5) (City of Riverside 2018).

SAN BERNARDINO COUNTY

Police Response Standards. The San Bernardino County General Plan does not establish police response standards for unincorporated areas (CSBLUSD 2007). Incorporated cities within San Bernardino County have established police response standards. For example, the City of Redlands desires a response time of 4–5 minutes (City of Redlands 2017).

VENTURA COUNTY

Police Response Standards. The Ventura County General Plan does not establish police response standards for unincorporated areas (CVRMAPD 2015). Incorporated cities within Ventura County have established police response standards. For instance, the City of Fillmore has established a desired level of one patrol officer per 1,000 population (City of Fillmore 1998).

3.15.2.3 SCHOOL SERVICES

STATE

COMMUNITY FACILITIES ACT OF 1982, AS AMENDED

The Community Facilities Act of 1982 applies to school services. Refer to Section 3.15.2.1, *Fire Protection*, above, for a detailed discussion of this regulation.

CALIFORNIA GOVERNMENT CODE

Section 53094 of the California Government Code allows the governing board of a school district to render city zoning ordinances inapplicable to a proposed use of property by a two-thirds vote of its members. This code does not require a school district to comply with the zoning ordinances of a county or city unless the zoning ordinance makes provision for the location of public schools and unless the city or county has adopted a general plan.

Section 65995 indicates that “[e]xcept for a fee, charge, dedication, or other requirement authorized under Section 17620 of the Education Code, or pursuant to Chapter 4.7 (commencing with Section 65970), a fee, charge, dedication, or other requirement for the construction or reconstruction of school facilities shall not be levied or imposed in connection with, or made a condition of, any legislative or adjudicative act, or both, by any state or local agency involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization, as defined in Section 56021 or 56073.”

In addition, Section 65996 states that payment of fees pursuant to Education Code Section 17620 and Chapter 4.7 (commencing with Section 65970) of Division 1 of Title 7, shall be the exclusive methods of considering and mitigating impacts on school facilities that occur or might occur as a result of any legislative or adjudicative act, or both, by any state or local agency involving, but not limited to, the planning, use, or development of real property or any change of governmental organization or reorganization, as defined in Section 56021 or 56073. Section 65996 further states that “[t]he provisions of this chapter are hereby deemed to provide full and complete school facilities mitigation and, notwithstanding Section 65858, or Division 13 (commencing with Section 21000) of the Public Resources Code, or any other provision of state or local law, a state or local agency may not deny or refuse to approve a legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property or any change in governmental organization or reorganization, as defined in Section 56021 or 56073, on the basis that school facilities are inadequate.”

CALIFORNIA EDUCATION CODE

Section 17620 of the California Education Code states that “[t]he governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement against any construction within the boundaries of the district, for the purpose of funding the construction or reconstruction of school facilities, subject to any limitations set forth in Chapter 4.9 (commencing with Section 65995) of Division 1 of Title 7 of the Government

Code.” The fees, charges, dedications, or other requirements may be applied only to new commercial and industrial construction, to new residential construction, or to location, installation, or occupancy of manufactured homes and mobile homes, as defined in Section 17625.

UNIVERSAL PRESCHOOL ACT (SB 976)

Existing law (i.e., the Early Education Act), requires the Superintendent of Public Instruction, to, among other things, provide an inclusive and cost-effective preschool program. Existing law requires the Superintendent to develop standards for the implementation of high-quality preschool programs. This bill would rename the Early Education Act as the Universal Preschool Act, and would revise and recast the act to, among other things, require the State Department of Education, in consultation with the State Department of Social Services, to administer the universal preschool program. The bill would require the Superintendent and the Director of Social Services to convene a statewide coordination council to develop, among other things, goals, guidelines, and best practices to be used at a local level to implement a universal preschool program, as provided. The bill would require the Superintendent, in consultation with the Director of Social Services, to develop standards for the implementation of high-quality preschool programs in all settings, including, among other settings, transitional kindergarten. This bill would provide that the changes to law described above would become operative only upon an appropriation of funds by the Legislature for these purposes in the annual Budget Act or another statute.

LOCAL

DEVELOPER IMPACT FEES

One primary source for financing library facilities within the SCAG region and across the state is developer impact fees. These fees reduce impacts of residential developments; generally, developers can construct new library facilities or pay impact fees to the library to mitigate the impacts from a specific project. Fees vary depending on the jurisdiction in which the project is located.

3.15.2.4 LIBRARY SERVICES

STATE

COMMUNITY FACILITIES ACT OF 1982, AS AMENDED

The Community Facilities Act of 1982 applies to library services. Refer to Section 3.15.2.1, *Fire Protection*, above, for a detailed discussion of this regulation.

LOCAL

DEVELOPER IMPACT FEES

One primary source for financing library facilities within the SCAG region and across the state is developer impact fees. These fees reduce impacts of residential developments; generally, developers can construct new library facilities or pay impact fees to the library to mitigate the impacts from a specific project. Fees vary depending on the jurisdiction in which the project is located.

3.15.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to public services if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives.
- Result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities, need for new or physically altered police facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives.
- Result in substantial adverse physical impacts associated with the provision of new or physically altered school facilities the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios or other educational performance factors.
- Result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, need for new or physically altered library facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives.
- Result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, or other performance objectives. (Note: This impact is discussed in Section 3.16, *Recreation*).

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of the Plan including policies and strategies as well as potential projects to evaluate how conditions in 2050 under the Plan would differ from existing conditions. The analysis of public services considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

This 2024 PEIR analyzes the potential for the Plan to result in the need for new public service facilities (i.e., fire and police stations, schools, and libraries) and the associated potential for construction and subsequent operation of such facilities to cause physical environmental impacts. The methodology for determining the significance of impacts on public services compares existing conditions (2022 or most recent data available – see Section 3.0, *Introduction to the Analysis*, for a discussion of baseline) to the expected future use of public services under Connect SoCal 2024 in 2050. Due to the size of the region, a detailed analysis of individual fire/police stations,

schools or school districts, and libraries and their capacity is not feasible. As such, the analysis focuses on region wide capacity and impacts. The analysis of these impacts is programmatic at the regional level.

The need for or deficiency in adequate public services in and of itself is not a CEQA impact, but a social or economic impact (*City of Hayward v. Board of Trustees* [2015] 242 Cal.App.4th 833, 843). In accordance with CEQA, this 2024 PEIR analysis focuses on the extent to which the Plan promotes growth patterns resulting in a need for additional public services that results in the construction of new facilities or additions to existing facilities. The impact from that construction and/or facilities operation would result in a potential impact to the environment. An increase in population, by itself, would not necessarily increase demand for public services and associated facilities.

Fire and police protection service needs are dependent on various factors, including the size of the service population and the geographic area served, the number and types of calls for service, the characteristics of a project and its surrounding community, as well as available existing facilities and staffing in an area.

In *Goleta Union School District v Regents of University of California* (1995) 37 Cal. App. 4th 1025, the court held that school overcrowding is a social impact and does not require analysis in an EIR and mitigation measures, unless the overcrowding is linked to physical environmental effects (such as new school construction). However, the law is somewhat unclear on how to analyze impacts from school facilities.

The statutes significantly limit the application of CEQA to school facilities impact issues. The fees set forth in Government Code Section 65996 constitute the exclusive means of both "considering" and "mitigating" school facilities impacts of projects (Government Code Section 65996(a)). Because the statute states that the statutory fees are the exclusive means of considering, as well as mitigating, school impacts, it limits not only the mitigation measures that may be required but also the scope of impact review in CEQA documents and the findings for school impacts. State and local jurisdictions may not deny either legislative or adjudicative approvals on the basis of a refusal to pay fees in excess of those limits (Government Code Section 65995). In *Chawanakee Unified School District v County of Madera* (2011) 196 CA 4th 1016, the court held that because the methods in the statute are the exclusive means of "considering" impacts on schools, an EIR need not describe and analyze a development's impacts on schools. Consistent with this view:

Once the statutory fee is imposed, the impact should be determined to be mitigated because of the provision that the statutory fees constitute full and complete mitigation (Government Code Section 65995(b)); and

It should not be necessary to adopt a statement of overriding considerations for school facilities impacts when the statutory fee is assessed, because the impact is deemed as a matter of law to be adequately mitigated (Government Code Section 65995(b)).

The *Chawanakee* court also ruled that the reach of the statute is limited to impacts "on" schools and does not extend to impacts on the non-school physical environment, even though they may be "related" to schools in some way. The implications of this ruling are uncertain, however, because the court did not consider the effect of Government Code Section 65995(b), which states that the statute provides full school facilities mitigation notwithstanding CEQA, or of Government Code Section 65995(c), which defines a school facility as "any school-related consideration relating to a school district's ability to accommodate enrollment."

Based on the above and the uncertainty created by the *Chawanakee* decision related to impacts to non-school property from the construction of school facilities, for purposes of this 2024 PEIR, an impact on schools would occur if the Plan promotes growth patterns resulting in the need for and/or the provision of new or physically

altered public school facilities, the construction of which would cause significant environmental impacts in order to maintain classroom sizes or other performance objectives. The determination of whether there is a significant impact related to schools is based on whether a significant impact would result from the construction of new or expanded school facilities on non-school property.

Library service needs are dependent on various factors, including the size of the population within the respective geographical areas served, the number of library cardholders within the library system, the characteristics of a project and its surrounding community, as well as available existing facilities and staffing in an area.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT PS-1 Result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, need for new or physically altered fire protection facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives.

Significant and Unavoidable Impact - Mitigation Required

Impacts to fire protection services are associated with the physical impacts that would occur from construction and operation of new facilities. Service ratios and response times are tools that jurisdictions use to determine the need for such facilities, but do not necessarily indicate a significant impact under CEQA. The ability to provide adequate fire protection services is dependent on numerous factors including staffing levels, mutual aid agreements, deployment strategies, and technological advances in equipment. In conformance with California Constitution Article XIII Section 35(a)(2), existing policies, procedures, and practices related to fire protection and emergency services, fire departments would maintain acceptable emergency response times through the provision of additional personnel and equipment as needed, as well as potentially constructing new or expanding existing fire and emergency response facilities.

As described above, fire and emergency services in the SCAG region are provided by numerous agencies within multiple jurisdictions. Plan transportation projects include grade crossings, arterials, interchanges, and auxiliary lanes. Additionally, implementation of Plan policies and strategies could include a range of project uses and sizes comprising all the kinds of development anticipated in the region through 2050. Depending upon timing, location, and duration, construction activities for projects, implemented of the Plan could delay emergency vehicle response times or otherwise disrupt delivery of emergency services. Impacts to emergency response plans and roadway access for emergency response vehicles during construction of these projects is addressed in Section 3.9, *Hazards*

and Hazardous Materials, of this 2024 PEIR. As discussed therein, impacts to emergency response vehicle access during construction activities would not typically result in a determination by a jurisdiction that new facilities would be required; however, due to the size of the region, the number of transportation and land use development projects that would occur in the region through 2050, and potential for unusual circumstances to occur, emergency access impacts are determined to be significant even with mitigation.

Transportation projects included in the Plan that involve transit, passenger rail, and active transportation are largely concentrated in urban and suburban areas, including Palm Springs, Riverside, San Bernardino, Anaheim, Irvine, the Los Angeles Basin, the San Gabriel Valley, the San Fernando Valley, Santa Clarita, Palmdale, and Lancaster. As these urban and suburban areas increase in density, additional fire protection and emergency response services and associated facilities would be required to meet emergency response standards. Such increased density in these areas would have the potential to exceed the capacity of existing fire stations to provide adequate response, thus requiring either the expansion of existing stations to accommodate additional equipment and greater number of personnel or the construction of new stations, which are more strategically located and capable of reducing response times within a denser urban pattern of development. In addition, fire protection and emergency response services may need to be able to expand where development occurs in the wildland/urban interface in response to increased wildfire risk.

Construction activities associated with projects implemented as a result of the Plan may temporarily increase demand on fire protection and emergency medical services. Construction activities could potentially expose combustible materials (e.g., wood, plastics, sawdust, coverings, and coatings) to fire risks from machinery and equipment sparks, exposed electrical lines, chemical reactions in combustible materials and coatings and lighted cigarettes. However, in compliance with Cal-OSHA requirements, construction managers and personnel for individual projects would be trained in emergency response and fire safety operations. Additionally, fire suppression equipment (e.g., fire extinguishers) specific to construction are required to be maintained on individual development sites.

By 2050, the SCAG region is expected to grow by nearly 2.1 million people. According to the Plan, it is projected that the majority of new household growth and employment growth would be planned in PDAs (see Map 2-9, Priority Development Areas, in Chapter 2, *Project Description*). As such, existing facilities and services could become overburdened during the lifetime of the Plan.

The Plan's forecasted regional development pattern seeks to encourage and facilitate infill and redevelopment that minimizes the consumption of open space. Therefore, it is likely that most growth will occur in areas already well-served by fire protection services and equipment. However, with increasing density it is anticipated that construction of new facilities will be needed to serve the new uses. In some areas existing facilities may need to be expanded, and/or additional facilities constructed.

While construction of fire protection facilities does not typically result in substantial environmental impacts, the location, size, design, and proximity to sensitive receptors of new facilities are not known at this time. Fire protection facilities are generally anticipated to be located on infill lots that are between 0.5 and 1 acre in size. In urbanized areas, new facilities would not involve expansion of the urban sphere beyond current boundaries and, thus, there would be no need for new or expanded infrastructure. As an example, in the City of Los Angeles, there are four basic configurations for fire stations, the typical standard fire/paramedic station consists of a 15,250-square-foot building on a parcel that is approximately one acre. Based on the urban location and the relatively small size of typical facilities, the construction of a new fire facility or expansion of an existing facility would typically qualify for an infill exemption or result in less-than-significant impacts with standard regulatory compliance

measures and design features. However, it is acknowledged that there may be a need to construct some fire stations outside of urban areas, which could involve additional potential effects. As such, given the size of the region, the amount of projected growth anticipated to occur through 2050, and the variability in site conditions, it is reasonably foreseeable that unusual circumstances could result in adverse effects associated with construction of new facilities in both urban, suburban, and rural settings.

Construction and operation of fire stations could have impacts similar to other development projects analyzed throughout this 2024 PEIR, including impacts to aesthetics, air quality, noise, cultural resources, and utilities. Noise impacts of emergency service provider facilities, which are unique to this type of operation, can affect nearby sensitive receptors but such site-specific impacts are not reasonably foreseeable at this time. In any event, construction of these facilities would comply with all applicable laws, regulations, and ordinances, and mitigation measures would be required to address potentially significant impacts.

While the 2024 PEIR analyzes anticipated effects of regional transportation projects and growth related to air quality, noise, traffic, utilities, and other environmental impact areas, given the increased growth as well as densified development (e.g., more families living and/or working there), implementation of Connect SoCal 2024 could result in the need for construction of new or physically altered fire protection and emergency response facilities in order to maintain acceptable service ratios. Although details regarding the specific location and size of such facilities are not currently available, given the size of the region and increase in need for fire protection, impacts are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GEN-1, SMM-HYD-1, SMM-WF-1, and SMM-WF-2.

PROJECT-LEVEL MITIGATION MEASURES

See PMM AES-1, PMM AQ-1, PMM AQ-2, PMM-BIO-1, PMM-BIO-2, PMM-BIO-4, PMM-BIO-5, PMM-CUL-1, PMM-CUL-2, PMM-GEO-1, PMM-GEO-2, PMM-GHG-1, PMM-HAZ-2 through PMM-HAZ-4, PMM-NOI-1, PMM-NOI-2, PMM-TCR-1, PMM-UTIL-1, and PMM-WF-2.

- PMM-PSP-1** In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects of constructing new or physically altered fire and police facilities, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:
- a) Coordinate with fire and police protection services agencies to ensure that there are adequate facilities to maintain acceptable service ratios, response times or other performance objectives for fire and police protection services and that any required additional construction of buildings is incorporated into the project description.
 - b) Where current levels of services at the project site are found to be inadequate, provide fair share contributions towards infrastructure improvements for fire and police protection services facilities, as appropriate and applicable, to mitigate identified CEQA impacts.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to the construction of new or physically altered public services facilities which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT PS-2 **Result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities, need for new or physically altered police facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives.**

Significant and Unavoidable Impact – Mitigation Required

Impacts to police protection services are associated with the physical impacts that could occur from construction and operation of new facilities. Service ratios and response times are tools that jurisdictions use to determine the need for such facilities, but do not necessarily indicate a significant impact under CEQA.

New Light Rail Transit (LRT) and commuter rail routes/extensions in Los Angeles, Orange, Riverside, and San Bernardino counties, as well as transit-related projects, would involve the development of new transit stations. Operation of these new transit stations would require additional security services to protect the public. In some cases, such as with Metro, the governing transit authority provides security as an element of the project, which would reduce the need for public protective security services. The Plan encourages increased transit use that could result in an increased need for protective security services for transit users and employees.

Connect SoCal 2024 would encourage and facilitate new growth in PDAs that would provide for more walkable, mixed-use communities and development with more transportation options. According to the Plan, it is projected that the majority of new household growth and employment growth would be planned in PDAs (see Map 2-9, Priority Development Areas, in Chapter 2, *Project Description*). PDAs are located in both suburban and urban areas, throughout the SCAG region. As these areas experience more people working and living there, additional police services would be required. As a result, the Plan would have the potential to increase the need for police services, usually in proportion to the densified environment or anticipated population growth in a given area. This would likely increase the staffing of sworn officers and create a potential need to construct new stations to ensure acceptable levels of service that would have the potential to result in physical alterations and related significant effects on the environment. As discussed under in Impact PS-1, above, the construction of police protection facilities does not typically result in substantial environmental impacts. However, similar to fire protection facilities, the location, size, design, and proximity to sensitive receptors of new facilities is not known at this time.

Police services are provided by several agencies within multiple jurisdictions. Local jurisdictions are required to determine the degree of impact to police services and comply with state, county, and city requirements to protect public safety.

Impacts related to emergency response planning and emergency access during construction and operation of land use projects resulting from implementation of the Plan are discussed in Section 3.9, *Hazards and Hazardous Materials*.

The Plan seeks to encourage and facilitate infill and redevelopment that minimizes the consumption of open space. Therefore, it is likely that growth will occur in areas already well-served by police protection providers with existing facilities. However, with increasing density it is anticipated that construction of new facilities will be needed to serve the new uses. In some areas, existing facilities may need to be expanded, and/or additional facilities constructed. While construction of police protection facilities does not typically result in substantial environmental impacts the location, size, design, and proximity to sensitive receptors of new facilities are not known at this time. Construction and operation of police stations could have impacts similar to other development projects analyzed throughout this 2024 PEIR, including impacts to aesthetics, air quality, noise, cultural resources, and utilities.

Noise impacts of police stations are unique to emergency responders and can affect nearby sensitive receptors. However, such site-specific impacts are not reasonably foreseeable. In any event, construction of these facilities would comply with all applicable laws, regulations, and ordinances, and mitigation measures would be required to address potentially significant impacts.

While the 2024 PEIR analyzes anticipated effects of regional transportation and growth related to air quality, noise, traffic, utilities, and other environmental impact areas, given the increased growth as well as densified development in some areas and new development in less urbanized areas, the Plan could contribute to the need for construction of new or physically altered police facilities in order to maintain acceptable service ratios. Because the location and size of such facilities is not reasonably foreseeable, impacts are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-HYD-1, SMM-LU-1 through SMM-LU-3, SMM-POP-1, and SMM-POP-2.

PROJECT-LEVEL MITIGATION MEASURES

See PMM AES-1, PMM AQ-1, PMM AQ-2, PMM-BIO-1, PMM-BIO-2, PMM-BIO-4, PMM-BIO-5, PMM-CUL-1, PMM-CUL-2, PMM-GEO-1, PMM-GEO-2, PMM-GHG-1, PMM-HAZ-2 through PMM-HAZ-4, PMM-NOI-1, PMM-NOI-2, PMM-PS-1, PMM-TCR-1, PMM-UTIL-1, and PMM-WF-2.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level

mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to the construction of new or physically altered public services facilities which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

Impact PS-3 **Result in substantial adverse physical impacts associated with the provision of new or physically altered educational facilities, need for new or physically altered educational facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives.**

Significant and Unavoidable Impact - Mitigation Required

Total population in the region is anticipated to increase by nearly 2.1 million people over the lifetime of the Plan (with or without the Plan); some of this population increase would include school age children (SCAG 2023). According to SCAG's Demographics and Growth Technical Report, the share of children will decline by 5.33 percent by 2050, but school age children will continue to make up a large share of the overall population.

Based on the 2021 enrollment of approximately 2.7 million students in the SCAG region (approximately 14.5 percent of an overall 2020 population of 18.8 million), and considering the projected growth scenario for 2050, SCAG has projected the number of children enrolled in K–12 schools to increase by approximately 298,000 students (SCAG 2023). This calculation assumes that the percent of school age children within the SCAG region remains constant at 14.5 percent, the increase in the number of students would be approximately 558,000 students, or 14.5 percent of the anticipated increase of 2.1 million people for the SCAG region over the lifetime of the Plan. It is anticipated that this increase in population and households would be largely in existing communities and PDAs which would require expansion of existing schools and construction of new schools in the region. However, it is important to note that many public schools have experienced actual declines in enrollment as a result of potentially converging factors such as declining birth rates, population shifts towards more affordable areas, and the growth of charter schools.

The 2020 COVID-19 pandemic accelerated the pace of declining enrollment trends, thus creating financial strains on school districts across the SCAG region. For example, in the largest district in the region, Los Angeles Unified School District (LAUSD), due to the pandemic and other ongoing trends, enrollment is predicted to decline by 30 percent over the next decade (LA Times 2022). In 2021, SB 976 replaced the Early Education Act with the Universal Preschool Act, whose aim is to provide a universal preschool program that will be free and available to all three and four-year-olds in the state by 2025–2026. The Plan encourages and facilitates growth in existing urban and suburban communities within the SCAG region such as PDAs (see Map 2-9, Priority Development Areas, in Chapter 2, *Project Description*).

School standards, performance measures, and related policies are set for public schools in school district long-range plans. To meet increased demand, existing schools would likely need additional facilities and other resources to maintain adequate educational standards. In some cases, depending on the pattern of development, it could be necessary to construct new schools as has been the case in Orange County's Saddleback Valley Unified School

District. Such construction could have impacts on aesthetics, air quality, cultural resources, noise, transportation, as well as other public services and utilities.

It is assumed that if new or expanded schools are determined to be necessary, such facilities could occur in proximity to residential uses. As allowed under Section 53094 of the California Government Code, school districts have the authority to render city zoning ordinances inapplicable, and thus may exempt schools from complying with local zoning regulations. Depending on the location of new schools, impacts related to site conditions and proximity to sensitive receptors could occur. Such impacts are not reasonably foreseeable without information as to design, location and proximity to the population to be served. Further, any significant impacts that could result from the unique characteristics of a specific project site, or specific characteristics of a given school (e.g., night lighting and performance spaces) would be speculative at this time. The construction of school facilities would be subject to project-specific CEQA review. The 2024 PEIR analysis of effects of regional transportation and growth with respect to air quality, noise, traffic, utilities, and other environmental impact areas, would include impacts of expanded and new schools. Given the increased growth as well as densified development, the Plan could contribute to substantial adverse physical impacts associated with the construction and subsequent operation of new or physically altered school facilities. As such, impacts are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-GEN-1, SMM-LU-1 through SMM-LU-3, SMM-POP-1, and SMM-POP-2.

PROJECT-LEVEL MITIGATION MEASURES

See PMM AES-1, PMM AQ-1, PMM AQ-2, PMM-BIO-1, PMM-BIO-2, PMM-BIO-4, PMM-BIO-5, PMM-CUL-1, PMM-CUL-2, PMM-GEO-1, PMM-GEO-2, PMM-GHG-1, PMM-HAZ-2 through PMM-HAZ-4, PMM-NOI-1, PMM-NOI-2, PMM-TCR-1, PMM-UTIL-1, and PMM-WF-2.

PMM-PS-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects of constructing new or physically altered school facilities, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:

- Where construction or expansion of school facilities is required to meet public school service ratios, support expansion of such facilities, for example by ensuring safe routes to schools.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to the construction of new or physically altered public services facilities which could cause significant environmental impacts in order to maintain acceptable

service ratios, response times, or other performance objectives, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT PS-4 Result in substantial adverse physical impacts associated with the provision of new or physically altered library facilities, need for new or physically altered library facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives.

Significant and Unavoidable Impact – Mitigation Required

Population in the SCAG region is anticipated to increase by nearly 2.1 million people over the next 25 years, with or without Connect SoCal 2024. As discussed above, the counties within the SCAG region all have different service criteria for library services, with some counties not having set any at the time of this 2024 PEIR. Due to the 2020 COVID-19 pandemic, public libraries, particularly servicing underserved populations, were especially impacted by closures resulting from lockdowns. Despite the challenges resulting from the pandemic, public libraries have continued to provide library services while also providing on-site community services, such as providing a location to apply for passports and vaccination centers. Additionally, public libraries continue to advance strategic efforts towards implementing universal broadband access across the country. In response to the fiscal challenges facing public libraries during the COVID-19 pandemic, federal funding legislation and other relief funds were created and implemented. The ALA COVID Library Relief Fund, a \$1.25 million program, assisted libraries across the country experiencing COVID-related economic hardship. As part of the American Rescue Plan Act of 2021, the Emergency Connectivity Fund (ECF) program made \$7.17 billion available to libraries and schools to purchase and distribute technology necessary for remote learning, working from home, virtual healthcare visits, and more. The Infrastructure Investment and Jobs Act, signed into law in November 2021, provided \$43 billion for broadband deployment and \$2.75 billion through the Digital Equity Act. Currently, 93 percent of public libraries provide or are planning to provide free Wi-Fi access, even when their buildings are closed to the public; 44 percent of public libraries have moved routers outdoors to improve public access, and 23 percent of libraries also provide Wi-Fi hotspots for patrons to use at home (American Library Association 2022).

New transportation facilities, especially those in urban areas, could facilitate access to libraries and result in increased use of some libraries. In addition, the anticipated growth in population and households would increase demand, which may result in a need for new and/or expanded library facilities. As communities grow, the need for library facilities is assessed by each local jurisdiction and additional facilities are constructed in accordance with capital investment plans and budgets. Depending on the location of any expanded or new library facilities, site-specific impacts could occur. The 2024 PEIR analysis of effects of regional transportation and growth with respect to air quality, noise, traffic, utilities, and other environmental impact areas, would include impacts of expanded and new libraries. Although the construction of these facilities would be subject to project-specific CEQA review, given the size of the region, the increased growth as well as densified development under the Plan, the potential number of library facility projects being implemented through 2050, and potential for unusual circumstances to occur with any given project, it is reasonably foreseeable that the Plan could contribute to substantial adverse physical impacts associated with the construction and subsequent operation of new or physically altered library facilities. As such, impacts are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

SMM-GEN-1, SMM LU-1 through SMM-LU-3, SMM-POP-1, and SMM-POP-2.

PROJECT-LEVEL MITIGATION MEASURE

See PMM AES-1, PMM AQ-1, PMM AQ-2, PMM-BIO-1, PMM-BIO-2, PMM-BIO-4, PMM-BIO-5, PMM-CUL-1, PMM-CUL-2, PMM-GEO-1, PMM-GEO-2, PMM-GHG-1, PMM-HAZ-2 through PMM-HAZ-4, PMM-NOI-1, PMM-NOI-2, PMM-TCR-1, PMM-UTIL-1, and PMM-WF-2.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures would reduce the impacts related to the construction of new or physically altered public services facilities that could cause significant environmental impacts in order to maintain acceptable service ratios, response times, or other performance objectives, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT PS-5 **Result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, or other performance objectives.**

As discussed in Section 3.0, *Introduction to the Analysis*, due to the similarities of the topic areas, Impact PS-5 is addressed together with Impact REC-2 in Section 3.16, *Recreation*, of this 2024 PEIR.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual transportation projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in of itself, would result in significant adverse environmental impacts with respect to public services, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

3.15.4 SOURCES

FIRE PROTECTION

- California Department of Forestry and Fire Protection (CAL FIRE). 2018. *Strategic Fire Plan for California*. https://osfm.fire.ca.gov/media/5590/2018-strategic-fire-plan-approved-08_22_18.pdf.
- CAL FIRE. 2022. *Fire Hazard Severity Zone Maps*. <https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-preparedness/fire-hazard-severity-zones/fire-hazard-severity-zones-map/>. Accessed March 6, 2023.
- CAL FIRE. 2023. About. <https://www.fire.ca.gov/about>. Accessed March 6, 2023.
- California Department of Transportation (Caltrans). 2023. Caltrans Near Me. <https://dot.ca.gov/caltrans-near-me>. Accessed March 15, 2023.
- California Government Code. Title 1, Division 1, Chapter 3, Article 5, Authority for and Scope of General Plan [65300–65303.4].
- California Government Code. Title 2, Division 1, Chapter 7, Article 5, Office of Emergency Services [8585–8589.7].
- California Government Code. Title 2, Division 3, Part 6.5, Chapter 3: Public Safety Communications [15278–15283].
- California Health and Safety Code. Division 12. Fires and Fire Protection.
- California Office of Emergency Services (Cal OES). 2019. *State of California Emergency Management Mutual Aid Plan*. Revised April. <https://www.caloes.ca.gov/PlanningPreparednessSite/Documents/EMMA%20PlanAnnexes%20A-F,%202012.pdf>.
- Cal OES. 2022. *Southern California Catastrophic Earthquake Plan*. <https://www.caloes.ca.gov/office-of-the-director/operations/planning-preparedness-prevention/planning-preparedness/catastrophic-planning/>. Accessed March 16, 2023.
- Cal OES. 2023a. About Cal OES. <https://www.caloes.ca.gov/Cal-OES-Divisions/About-Cal-OES>. Accessed March 15, 2023.
- CAL OES. 2023b. State Operations Center (SOC). <https://www.caloes.ca.gov/cal-oes-divisions/regional-operations>. Accessed March 16, 2023.
- City of El Centro. 2004. *El Centro General Plan*. Safety Element. February 2004. https://cityofelcentro.org/communitydevelopment/wp-content/uploads/sites/14/2021/06/El-Centro-GP_Safety.pdf.
- County of Imperial Fire Department & Office of Emergency Services (CIFDOES). 2023. Office of Emergency Services (OES). <https://firedept.imperialcounty.org/office-of-emergency-services-oes/#eoc>. Accessed March 15, 2023.
- County of Imperial Planning & Development Services (CIPDS). 1992. *General Plan Update Draft Environmental Impact Report*. <https://www.icpds.com/planning/land-use-documents/general-plan/general-plan-eir>. Accessed March 15, 2023.
- CIPDS. 2015. General Plan: Seismic and Public Safety Element. <https://www.icpds.com/planning/land-use-documents/general-plan/seismic-and-public-safety>. Accessed March 16, 2023.

- County of Los Angeles Department of Regional Planning (CLADRP). 2012. *Santa Clarita Valley Area Plan, 2012*. http://planning.lacounty.gov/assets/upl/data/pd_santa-clarita-area-plan-2012.pdf.
- CLADRP. 2014. *2035 General Plan Update Draft Environmental Impact Report*. June. <http://planning.lacounty.gov/generalplan/ceqa>. Accessed March 16, 2023.
- County of Orange. 2023. Fire Departments. <http://www.ocgov.com/residents/law/safety/fire>. Accessed March 16, 2023.
- County of Orange Fire Authority (OCFA). 2023. About Us. <https://www.ocfa.org/AboutUs/AboutOCFA.aspx#briefhistory>. Accessed March 16, 2023.
- County of Orange Public Works Development Services (COPWDS). 2015. *Orange County General Plan*. Chapter V, Public Services & Facilities Element. <http://www.ocpublicworks.com/ds/planning/generalplan>. Accessed March 16, 2023.
- County of Riverside Fire Department (CRFD). 2023. Service Area. <https://www.rvcfire.org/about-us/service-area>. Accessed March 16, 2023.
- County of Riverside Planning Department (CRPD). 2015. *General Plan Draft Environmental Impact Report*. January. <https://planning.rctlma.org/Zoning-Information/General-Plan/General-Plan-Amendment-No-960-EIRNo-521-CAP-March-2014/Draft-Environmental-Impact-Report-No-521>. Accessed March 16, 2023.
- County of Ventura Fire Department (CVFD). 2021. *Ventura County Fire Department: Annual Report 2020*. August. <https://vcfd.org/wp-content/uploads/2021/08/AnnualReport2020.pdf>.
- County of Ventura Resource Management Agency, Planning Division (CVRMAPD). 2005. *Draft Environmental Impact Report for Focused General Plan Update*. June. <https://www.cityofventura.ca.gov/DocumentCenter/View/2303/Final-EIR-for-the-2005-General-Plan-PDF?bidId=>.
- CVRMAPD. 2020. *Ventura County General Plan: Public Facilities, Services, and Infrastructure Background Report*. September 15. <https://cdm16255.contentdm.oclc.org/digital/collection/p266301ccp2/id/546>. Accessed March 16, 2023.
- Federal Emergency Management Agency (FEMA). 2000. *Disaster Mitigation Act of 2000*. https://www.fema.gov/sites/default/files/2020-11/fema_disaster-mitigation-act-of-2000_10-30-2000.pdf.
- FEMA. 2016. *National Mitigation Framework, Second Edition*. Approved June. <https://www.fema.gov/national-mitigation-framework>. Accessed March 16, 2023.
- FEMA. 2017. *National Incident Management System*. https://www.fema.gov/sites/default/files/2020-07/fema_nims_doctrine-2017.pdf. A
- FEMA. 2023a. About Us. <https://www.fema.gov/about-agency>. Accessed March 15, 2023.
- FEMA. 2023b. Glossary. <https://www.fema.gov/about/glossary>. Accessed March 15, 2023.
- FireDepartment.org. 2023. California Fire Departments. <https://fire-departments.org/fire-department/california-fire-departments.html>. Accessed March 16, 2023.
- International Code Council. 2019. *2019 California Fire Code*. Title 24, Part 9. <https://codes.iccsafe.org/content/CAFC2019>. Accessed March 16, 2023.
- Los Angeles County Fire Department (LACFD). 2021. *2021 Annual Report*. https://fire.lacounty.gov/wp-content/uploads/2022/08/LACoFD-2020-Annual-Report_Final_081722.pdf.

- Management Partners, Incorporated. 2009. *Riverside County Fire Department Strategic Plan 2009–2029*.
<http://www.rvcfire.org/stationsAndFunctions/AdminSppt/StrategicPlanning/Documents/StrategicPlan2009.pdf>.
- National Park Service (NPS). 2018. About Us. <https://www.nps.gov/aboutus/index.htm>. Accessed March 16, 2023.
- San Bernardino County Fire Protection District (SBCFPD). 2022. San Bernardino County Fire Facts (FY 21–22)
<https://sbcfire.org/annualreports/fy-21-22/at-a-glance/>. Accessed July 10, 2023.
- San Bernardino County Local Agency Formation Commission (SBC LAFCO). *Countywide Service Review for: Fire Protection/Emergency Medical Services/Dispatch*.
http://www.sbcounty.gov/uploads/LAFCO//Downloads/Service_Review_Fire/Report/Fire_Service_Review.pdf.
- State Board of Forestry and Fire Protection (BFFP). 2018. *2018 Strategic Fire Plan for California*.
https://osfm.fire.ca.gov/media/5590/2018-strategic-fire-plan-approved-08_22_18.pdf.
- BFFP. 2019. *SRA Fire Safe Regulations, 2020*. 14 CCR Division 1.5, Chapter 7, Fire Protection, Subchapter 2, Articles 1–5, SRA Fire Safe Regulations. <https://bof.fire.ca.gov/media/9267/6-sra-fire-safe-regulations-2020-approved-ada.pdf#:~:text=14%20CCR%2C%20Division%201.5%2C%20Chapter%207%20Fire%20Protection%2C,shall%20be%20known%20as%20the%20E2%80%9CSRA%20Fire%20Safe>. Accessed March 16, 2023.
- State of California Department of Industrial Relations (CPIR). 1994. *Cal/OSHA Regulations*. §6773, Fire Protection and Fire Fighting Equipment. <https://www.dir.ca.gov/title8/6773.html>. Accessed March 16, 2023.
- U.S. Army Reserve (USAR). 2023. Defense Support of Civil Authorities: Inside the Army Reserve.
<https://www.usar.army.mil/DSCA/>. Accessed March 15, 2023.
- U.S. Bureau of Land Management (BLM). 2023. Fire and Aviation Program.
<https://www.blm.gov/programs/public-safety-and-fire/fire-and-aviation>. Accessed March 16, 2023.
- U.S. Coast Guard (USCG). 2023. The Coast Guard: America’s Oldest Maritime Defenders.
<https://www.uscg.mil/About/>. Accessed March 15, 2023.
- U.S. Department of Agriculture (USDA). 2023. About the Agency. <https://www.fs.usda.gov/about-agency>. Accessed March 15, 2023.
- U.S. Department of Homeland Security (DHS). 2023. Creation of the Department of Homeland Security.
<http://www.dhs.gov/creation-department-homeland-security>. Accessed March 15, 2023.
- U.S. Transportation Security Administration (TSA). 2023. Surface Transportation Resources.
<https://www.tsa.gov/for-industry/surface-transportation>. Accessed March 15, 2023.

POLICE PROTECTION

- Assembly Bill No. 38. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200720080AB38. Accessed August 28, 2019.
- California Code of Regulations. Title 13, Division 2, Department of the California Highway Patrol.
- California Government Code. Title 2, Division 1, Chapter 7, Article 5: Office of Emergency Services [8585–8589.7].
- California Government Code. Title 2, Division 3, Part 6.5, Chapter 3: Public Safety Communications [15278–15283].
- California Office of Emergency Services (Cal OES). 2017. *State of California Emergency Plan*. October 1, 2017.
https://www.caloes.ca.gov/wp-content/uploads/Preparedness/Documents/California_State_Emergency_Plan_2017.pdf.

- Cal OES. 2023. Standardized Emergency Management Systems. <https://www.caloes.ca.gov/office-of-the-director/operations/planning-preparedness-prevention/planning-preparedness/standardized-emergency-management-system/>. Accessed March 20, 2023.
- City of El Centro. 2004. *El Centro General Plan*. Safety Element. February 2004. https://cityofelcentro.org/communitydevelopment/wp-content/uploads/sites/14/2021/06/El-Centro-GP_Safety.pdf.
- City of Fillmore. 1998. *City of Fillmore General Plan 1988–2010*. Chapter VII, Public Facilities Element. <https://www.fillmoreca.com/DocumentCenter/View/313/General-Plan-Update---Public-Facilities-Element-PDF?bidId=>.
- City of Redlands. 2017. *City of Redlands General Plan 2035*. <https://www.cityofredlands.org/sites/main/files/file-attachments/gp2035.pdf>.
- City of Riverside. 2018. *Riverside General Plan 2025*. Public Safety Element. February 2018. https://riversideca.gov/cedd/sites/riversideca.gov.icedd/files/pdf/planning/general-plan/18_Public_Safety_Element_with%20maps.pdf.
- County of Imperial Planning & Development Services (CIPDS). 1993. *Imperial County General Plan Environmental Impact Report*. <http://www.icpds.com/CMS/Media/J-References,-Persons,-Agencies-Consulted.pdf>.
- County of Imperial Planning & Development Services (CIPDS). 2015. *Imperial County General Plan*. Seismic and Public Safety Element. <http://www.icpds.com/?pid=837>. Accessed November 5, 2018.
- County of Los Angeles Department of Regional Planning (CLADRP). 2015. *2035 General Plan Update Draft Environmental Impact Report*. March 2015. https://planning.lacounty.gov/assets/upl/project/gp_2035_lac-gpu-final-eir-final.pdf.
- County of Orange Public Works Development Services (COPWDS). 2015. *Orange County General Plan*. Chapter V, Public Services & Facilities Element. <https://ocds.ocpublicworks.com/sites/ocpwocds/files/import/data/files/8639.pdf>.
- County of Riverside Planning Department (CRPD). 2015. *Volume 1: Draft Program Environmental Impact Report (EIR) No. 521*. February 2015. <https://planning.rctlma.org/general-plan-environmental-impact-report-volume-i>. Accessed March 20, 2023.
- County of San Bernardino Land Use Services Division (CSBLUSD). 2007. *County of San Bernardino 2007 General Plan*. <http://www.sbcounty.gov/Uploads/lus/GeneralPlan/FINALGP.pdf>.
- County of San Bernardino Sheriff's Department (CSBSD). 2017. *2017 Annual Report*. https://wp.sbcounty.gov/sheriff/wp-content/uploads/sites/17/2017-Annual-Report_reduced.pdf.
- County of Ventura Resource Management Agency, Planning Division (CVRMAPD). 2015. *Ventura County General Plan*. Public Facilities & Services Appendix. <https://docs.vcrma.org/images/pdf/planning/plans/GENERAL-PLAN-Public-Facilities-Services-Appendix.pdf>.
- County of Ventura Resource Management Agency, Planning Division (CVRMAPD). 2015. *Ventura County General Plan*. Public Facilities & Services Appendix. <https://docs.vcrma.org/images/pdf/planning/plans/GENERAL-PLAN-Public-Facilities-Services-Appendix.pdf>.
- County of Ventura Sheriff's Department (CVSD). 2020. *Ventura County Sheriff's Office Annual Report 2020–2021*. https://s29762.pcdn.co/wp-content/uploads/2022/05/VC_Sheriff_Annual%20Report_2022.pdf.

Imperial County Sheriff's Office (ICSO). 2023. Average Fastest CAD Call Response Times, by Priority (August 31, 2023). Written correspondence from Graciela Jimenez, Administrative Analyst. Sent via email September 1, 2023.

Orange County Sheriff's Department (OCSD). 2021. *Annual Report FY 2021–2022*. <https://user-dxr3ceu.cld.bz/OCSD-AR-2022/2/>. Accessed March 20, 2023.

SCHOOLS

California Community Colleges (CCC). 2023. Community College Districts. <https://www.cccco.edu/Students/Find-a-College/Community-College-Districts>. Accessed August 17, 2023.

California Department of Education (CDE). 2023a. Fingertip Facts on Education in California. <https://www.cde.ca.gov/ds/sd/cb/ceffingertipfacts.asp>. Accessed March 20, 2023.

CDE. 2023b. Data Quest (2023). <https://dq.cde.ca.gov/dataquest/>. Accessed March 20, 2023.

CDE. 2023c. California Special Education Local Plan Areas. <https://www.cde.ca.gov/sp/se/as/caselpas.asp>. Accessed March 20, 2023.

CDE. 2023d. Regional Occupational Centers & Programs. <https://www.cde.ca.gov/ds/si/rp/>. Accessed March 20, 2023.

CDE. 2023e. State Board of Education. <https://www.cde.ca.gov/be/>. Accessed March 20, 2023.

CDE. 2023f. Vision, Mission, and Goals. <https://www.cde.ca.gov/be/ag/ag/vmgoals.asp>. Accessed March 20, 2023.

CDE. 2023a. State Board of Education. <https://www.cde.ca.gov/be/>. Accessed March 21, 2023.

CDE. 2023b. Vision, Mission, and Goals. <https://www.cde.ca.gov/be/ag/ag/vmgoals.asp>. Accessed March 21, 2023.

California Education Code. Chapter 12.5: Leroy F. Greene School Facilities Act of 1998.

California Education Code. Title 1, Division 1, Part 10.5, Chapter 6: Development Fees, Charges, and Dedications [17620–17626].

California Government Code. Title 5, Division 2, Part 1, Chapter 1, Article 4: Miscellaneous [53060–53087.8], Section 53080.

California Government Code. Title 7, Division 1, Chapter 4.9: Payment of Fees, Charges, Dedications, or Other Requirements Against a Development Project [65995–65998].

California State University (CSU). 2023. Campuses. <https://www.calstate.edu/attend/campuses>. Accessed March 20, 2023.

California Tax Data. Undated. *What is Mello-Roos?* <http://www.californiataxdata.com/pdf/Mello-Roos2.pdf>. Accessed March 21, 2023.

County of Los Angeles Office of Education (CLAOE). 2023. Public Schools Directory, Los Angeles County School Districts. <https://schooldirectory.lacoe.edu/los-angeles-county-public-schools-directory.aspx>. Accessed March 20, 2023.

County of Orange Department of Education (CODE). 2023. About OCDE. <https://ocde.us/AboutOCDE/Pages/default.aspx>. Accessed March 21, 2023.

County of Ventura Office of Education (CVOE). 2023. Schools. <https://www.vcoe.org/Schools>. Accessed March 20, 2023.

- Imperial County Office of Education (ICOE). 2020. 2020–2022 Report to the Community. <https://indd.adobe.com/view/10d42684-bf0d-4007-af8f-8323f4c94ecc>. Accessed March 20, 2023.
- Legislative Analyst’s Office. 1998a. Proposition 1A Class Size Reduction Kindergarten – University Public Education Facilities Bond Act of 1998. https://lao.ca.gov/ballot/1998/1A_11_1998.htm. Accessed March 20, 2023.
- Los Angeles Times (LA Times). 2022. LAUSD expecting 30% enrollment drop in the next decade. May 18, 2022. <https://www.latimes.com/california/story/2022-05-18/l-a-unified-enrollment-expect-to-plummet-leading-to-academic-and-employment-worries>. Accessed March 20, 2023.
- Regional Occupational Program (ROP). ROP Course Offerings. https://www.sbcrop.org/apps/pages/index.jsp?uREC_ID=427614&type=d&pREC_ID=933195. Accessed August 28, 2019.
- Senate Bill 976: Universal Preschool Act.
- Social Welfare History Project (SWHP). 2023. Elementary and Secondary Education Act of 1965. <https://socialwelfare.library.vcu.edu/programs/education/elementary-and-secondary-education-act-of-1965/>. Accessed March 21, 2023.
- Southern California Association of Governments (SCAG). 2023. Connect SoCal 2024 Demographics and Growth Forecast. Figure 3, Population Growth by Age, 2000–2050. <https://scag.ca.gov/connect-social-2024-read-draft-plan>. Accessed March 20, 2023.
- University of California. 2023. Campuses & Locations. <http://www.universityofcalifornia.edu/campuses/welcome.html>. Accessed March 20, 2023.

LIBRARY SERVICES

- American Library Association. 2022. *State of America's Libraries Report 2022*. <https://www.ala.org/news/sites/ala.org.news/files/content/state-of-americas-libraries-special-report-pandemic-year-two.pdf>.
- California Tax Data. Undated. *What is Mello-Roos?* <http://www.californiataxdata.com/pdf/Mello-Roos2.pdf>. Accessed March 21, 2023.
- County of Imperial Library. 2023. Welcome to the Imperial County Free Library. <https://library.imperialcounty.org/>. Accessed March 21, 2023.
- County of Los Angeles Department of Regional Planning (CLADRP). 2015. *Los Angeles County General Plan*. Chapter 13, Public Services and Facilities Element. Adopted October 6, 2015. https://planning.lacounty.gov/assets/upl/project/gp_final-general-plan-ch13.pdf.
- County of Los Angeles Library. 2023. About the Library. <https://lacountylibrary.org/aboutus/>. Accessed March 21, 2023.
- County of Orange Public Works Development Services (COPWDS). 2015. *Orange County General Plan*. Chapter V, Public Services & Facilities Element. <https://ocds.ocpublicworks.com/sites/ocpwocds/files/import/data/files/8639.pdf>.
- County of Riverside Library System. 2021. *Annual Report: Fiscal Year 2021–2022*. https://www.rivlib.net/sites/default/files/RCLSAAnnualReport-2021-2022_8.5x11-11.18.22.pdf.
- County of Riverside Library System. 2023. About Us. <https://www.rivlib.net/about/about-us>. Accessed March 21, 2023.

County of San Bernardino Land Use Service Division (CSBLUSD). 2019. *San Bernardino Countywide Plan Draft Environmental Impact Report*. June 17, 2019. https://countywideplan.com/wp-content/uploads/sites/68/2021/01/Ch_05-14-PS.pdf.

County of San Bernardino Library (CSBL). 2023. About Us. <https://sbclib.org/about-us/>. Accessed March 21, 2023.

County of Ventura Library. 2023. Available Services. <https://www.vencolibrary.org/services>. Accessed March 21, 2023.

County of Ventura Library. Undated. *Fiscal Year 2020–2021 in Review*. https://www.vencolibrary.org/sites/default/files/Infographic20_21_0.png. Accessed March 21, 2023.

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3.16 RECREATION

This section of the 2024 PEIR describes the existing recreational resources within the SCAG region, sets forth the regulatory framework that affects recreation resources, and analyzes the potential impacts of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible. This section also addresses public services related to parks along with recreation.

3.16.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for recreation follow:

- *Recreation Level of Service (LOS)*: In the context of recreation of recreational service, LOS refers to the amount of “service” each park, open land, trail, or other facility provides to its constituents (National Recreation and Park Association [NRPA] 2023). Conventional recreation and park LOS analysis—often called the “NRPA park metrics” method because it is published by the NRPA—identifies typical per capita demand for facilities in jurisdictions of various population sizes. NRPA park metrics provide empirical data from parks and recreation agencies across the country to allow individual agencies to identify the appropriate number of facilities or acres of parkland per 1,000 inhabitants within their jurisdiction. The County of Los Angeles 2035 General Plan (CLADPR 2022a) and Orange County General Plan (COPWDS 2015) have established a standard for parklands of four acres of local parkland and six acres of regional parkland per 1,000 county residents in unincorporated areas. The Imperial County General Plan (CIPDS 2008) has established a standard of five net acres of overall parkland per 1,000 county residents in unincorporated areas. The San Bernardino County General Plan (CSBLUSD 2007) has established a standard of 14.5 acres of undeveloped lands and/or trails per 1,000 county residents and 2.5 acres of regional parkland per 1,000 county residents. Ventura County has not established numeric parkland standards.

Because park needs and definitions vary among jurisdictions, the following descriptions are provided for informational purposes. The definitions below are not intended to define all parkland in the region, but rather, are intended to provide general guidance about different types of parks that can be found in the region.

- *Local Park*: According to the Los Angeles County General Plan, a park that is considered to serve the local community (within a two-mile service radius of the park) is generally 20 acres or less in size (CLADPR 2022a), (COPWDS 2015). Further, the Los Angeles County General Plan has refined local parks into the following categories (CLADPR 2022a):
 - *Park Node*: Park nodes are small pieces of open space that serve as public destinations, connections, and community defining spaces. Examples include plazas, rest areas, playgrounds, landmarks, public art installations, etc.
 - Size: One-quarter acre or less
 - Service Area: No service radius area

- *Pocket Park*: Pocket parks are less than three acres in size and serve residential or business areas within a quarter mile radius or within walking distance. Passive park amenities include picnic areas and seating areas. Active park amenities include children’s play apparatus.
 - Size: Less than three acres
 - Service Area: Up to one-quarter mile radius of the park
- *City Park*: A park having a wide range of improvements not usually found in neighborhood and community parks and designed to meet the recreational needs of the entire city population. Recreational facilities might include a nature area, golf course, zoo, pool, skateboarding parks, playing fields, or structures like gymnasiums, community centers, and public or private educational institutions. Parks may also be themed, such as a park dedicated to the agricultural heritage of the area. City Parks do not have a defined size or service area threshold.
- *Neighborhood Park*: A park or playground developed primarily to serve the recreational needs of citizens living within a 0.5-mile radius of the park. These facilities include pocket parks and neighborhood playgrounds (CLADPR 2022a). The common objective of all neighborhood parks is to bring people together to recreate and socialize close to home. Passive park amenities include informal open play areas, children’s play apparatus, group picnic areas with overhead shelters, and barbecues. Active park amenities include practice sports fields, basketball, tennis, and volleyball courts. Park facilities typically include public restrooms and onsite parking and information kiosks.
 - Size: Three to 10 acres
 - Service Area: One-half mile radius of the park
- *Community Park*: A larger park or facility developed to meet the park and recreational needs of those living or working within a one to two-mile radius. Community parks may have a variety of playing fields and community recreation facilities (CLADPR 2022a). Community parks that are located in residential neighborhoods serve both the needs of the community park service radius and neighborhood park service radius. The amenities programmed into a community park are focused on meeting the needs of several neighborhoods or large sections of the community. Passive park amenities include informal open play areas, children’s play apparatus, family and group picnic areas with overhead shelters, and barbecues; active sports activities including light sports fields, basketball courts and tennis courts, aquatics complexes, skate parks, soccer arenas, roller hockey, community gardens, and dog parks; and park facilities including public restrooms, concession buildings, community buildings, maintenance buildings, and on-site parking and information kiosks.
 - Size: 10 to 20 acres
 - Service Area: 1- to 2-mile radius around the park
- *Parklet*: A parklet is an expansion of the sidewalk into one or more on-street parking spaces to create people-oriented places. Parklets introduce new streetscape features such as seating, planting, bicycle parking, or elements of play (City of Los Angeles 2019).
- *Regional Park*: A park greater than 20 acres in size is generally considered a regional park. A regional park may have a service radius of over 25 miles (CLADPR 2022a; COPWDS 2015). For instance, the Los Angeles County General Plan has refined regional parks into the following categories (CLADPR 2022a):
 - *Community Regional Park*: Community regional parks protect and conserve natural resources, preserve open spaces, and provide recreational facilities that are not available in neighborhood or community parks. Passive park amenities include open play areas, children’s play apparatus, group picnic areas with

overhead shelters, and barbecues. Active sports activities include lighted sports fields, basketball courts, and tennis courts. Additional amenities include multiple sports facilities, aquatics centers, fishing lakes, community buildings, gymnasiums, and scenic views and vistas. Park facilities typically include public restrooms, concession buildings, community buildings, maintenance buildings, and on-site parking and information kiosks.

- Size: 20 to 100 acres
- Service Area: Up to 20-mile radius around the park
- *Regional Park*: Regional Parks include unique areas such as lakes, wetlands, auditoriums, water bodies, and campgrounds, in addition to the active recreational facilities offered in community and community regional parks. Many of the recreation activities are associated with experiencing the natural environment. A regional park may also perform important ecological and environmental functions, including serving as wildlife habitats. Passive park amenities include group picnic areas with overhead shelters and barbecues. Additional park amenities include lakes, wetlands, auditoriums, water bodies for swimming, fishing and boating, and sports fields.
 - Size: Greater than 100 acres
 - Service Area: 25-mile or greater radius around the park
- *Special-Use Facility*: Special-use facilities are generally single purpose facilities that serve greater regional recreational or cultural needs. Passive features include wilderness parks, nature preserves, botanical gardens, and nature centers. Active uses include performing arts, water parks, golf driving ranges, and golf courses.
 - Size: No size criteria
 - Service Area: No assigned service radius area
- *Trails/Linear Parks*: SCAG (SCAG 2020a), Los Angeles County (CLADPR 2022a), and San Bernardino County (CSBLUSD 2007) define trails as linear parks that provide community access to increased health and fitness activities in the increasingly urbanized region.
- *Multi-Benefit Parks*: According to the Los Angeles County General Plan, multi-benefit parks and open spaces are created through collaborative efforts among city, county, state, and federal agencies; private organizations; schools; private landowners; and industries. These parks are characterized as having more than one function and contributing to multiple program goals. There are a number of applications of multi-benefit parks including: utility corridors and flood protection basins that can serve as areas for active or passive recreation; school sites located adjacent to parks that can share facilities, such as parking and park amenities; watershed areas that can protect critical wildlife habitats, preserve open space, provide trails for recreation, and contribute to water conservation objectives; and water districts, where trails can be located adjacent to flood protection channels and trailhead parks (CSBLUSD 2015a).
- *School Sites*: According to the Los Angeles County General Plan, the County works with school districts to organize, promote, and conduct joint recreational and educational programs. These community recreation agreements are a form of joint-use agreement, where either a school or park facility may be put to some recreational use by the other party in exchange for some facility improvement and/or maintenance. A park does not have to be adjacent to a school (i.e., share a common boundary) for an agreement to be viable (CSBLUSD 2015a).
- *City Parks and Facilities*: According to the Los Angeles County General Plan, city parks and facilities that are located close to the borders of the unincorporated areas are enjoyed by city and County residents alike.

Similarly, local County parks that are located within or close to the borders of cities provide recreational amenities for both populations (CSBLUSD 2015a).

- *Private Recreational Facilities:* According to the Los Angeles County General Plan, private recreational facilities play an important role in meeting recreational needs. The network of private recreational facilities consists of churches, health and fitness clubs, and other organizations that offer a variety of programs and facilities (CSBLUSD 2015a).
- *Greenways:* According to the Los Angeles County General Plan, greenways provide a linear area along natural corridors, and often follow features such as rivers, man-made waterways, drainage channels, and utility easements. Greenways can accommodate various modes of uninterrupted pedestrian travel on pathways, including walking, jogging, and bicycling, and can include recreation areas and natural landscape features (CSBLUSD 2015a).

Within the SCAG region, parks are classified into several subgroups: neighborhood, community, city, as well as specialized recreation areas, regional recreational areas, state and federal recreation areas, and open space areas (CDPR 2023a).

- *Specialized Recreation Area:* A recreation area or facility devoted to a very specific activity or use, such as a linear park, golf courses, or soccer parks.
- *Regional Recreation Area:* Regional recreation areas provide access to significant ecological, cultural, or historical features or unique facilities that attract visitors from throughout the entire region (including incorporated and unincorporated areas). Regional recreation areas may be composed of one large site or several sites located in proximity that together provide a significant recreation area for the region. These parks may include areas of significant natural resources, as well as more developed activity sites. Regional recreation areas may be supported by a wide variety of specialized facilities such as indoor recreation centers, large group picnic areas, special event facilities/festival space, and campgrounds.
- *State and Federal Recreation Areas:* A park maintained by state or federal agencies and typically providing recreational opportunities like camping, hiking, bird watching, rafting, boating, and fishing. Many parts of the region have vast areas covered by state or federal parkland.
- *Open Space Areas:* Open space refers to lands that are generally unimproved and used for resource conservation and/or the managed production of resources. Open space is comprised of both designated open space and “de facto” open space. Designated open space is land that has been left undeveloped by design. Other land is deemed open space not by design, but because the land is not involved in a productive use, or in the case of agricultural lands, the land is consumed by a productive use that contributes to the visual quality of the land or provides wildlife habitat.

EXISTING CONDITIONS

The diverse natural resources located in the six counties within SCAG’s jurisdiction provide a wide range of recreational opportunities for residents and tourists alike. Resources range from small neighborhood parks featuring playground equipment and sports fields to vast expanses of wilderness with hiking trails, rafting, and camping. In addition to parks for active recreation, the SCAG region also has a diversity of open space areas. The SCAG region contains approximately 150 miles of coastline, four national forests, two national parks, and several national wildlife refuges. There are 48 California state parks, 383 county parks, and over 4,020 city parks and open space areas in the SCAG region (CDPR 2023a; CPAD 2022). These lands are governed by a variety of

agencies, including municipal park departments, independent park districts, counties, cities, community service districts, and federal and state agencies.

OPEN SPACE AND RECREATION LANDS IN THE SCAG REGION

Public parks and open space serve the residents in the SCAG region, as well as tourists and visitors. The variety of landscapes within the SCAG region allows for a broad range of parks and recreational facilities, many of which are quite unique. The multitude of parks and associated facilities make the SCAG region an ideal area for outdoor exploration and draw tourists and visitors to the area. **Table 3.16-1, Recreational Areas and Protected Open Space by County (Acres)**, shows California Protected Areas (CPAs), lands owned in fee, from small parks to large wilderness areas, in each SCAG county by acreage.

TABLE 3.16-1 Recreational Areas and Protected Open Space by County (Acres)

COUNTY	TOTAL ACRES
Imperial	1,564,947
Los Angeles	916,205
Orange	151,471
Riverside	2,974,783
San Bernardino	8,519,966
Ventura	657,399
Total	14,784,771

Source: CPAD 2022

Each city and county within the SCAG region have a general plan containing an open space and/or parks and recreation element. Each element describes specific rules, regulations, and current conditions of various local parks and recreation facilities to maximize recreational benefits within each jurisdiction. Based on the information found in the various county plans, Los Angeles County has a deficiency in local parkland. Los Angeles, Orange, and San Bernardino counties have established regional parkland standards, which they currently meet. Imperial County also meets its combined local and regional parkland standard. Riverside and Ventura Counties do not specify parkland and open space standards. Further detail regarding the condition of parks, recreation, and open space in counties within the SCAG region is described below.

IMPERIAL COUNTY

Imperial County is a predominantly agricultural area and approximately 50 percent of County lands are undeveloped and under federal jurisdiction. A recreation designation covers the largest area of any land use in the County (CIPDS 2015). The County maintains approximately 1,564,947 acres of regional parkland and protected open space, 97 percent of which is open access land. Two and a half percent of protected land has no public access and less than one percent has restricted access, where the public can only enter with a permit. This total includes parkland owned by the federal, state, county, and city as well as special district, nonprofit, private, and joint parkland (CIPDS 2015). The Imperial County General Plan has established a standard of five net acres of overall parkland per 1,000 residents in unincorporated areas (CIPDS 2008). With a total population of

approximately 181,000 in 2019, there are 8,646 regional parkland and protected open space acres per 1,000 inhabitants, which is significantly higher than the set overall standard (SCAG 2023).

Imperial County contains the Ocotillo Wells (California State Parks 2023a) and Heber Dunes State Parks (California State Parks 2023b) as well as eight County parks (CIPDS 2023). County parks maintain sports courts and recreational facilities, trails, barbecues, and playgrounds and space for activities such as camping, boating, and fishing. The Heber Community Center is also operated by the County and includes a library, event area, kitchen, and sports courts. Ocotillo Wells is a State Vehicular Recreation Area (SVRA) and contains more than 85,000 acres of desert open for off-road exploration, recreation, and camping. The Heber Dunes State Park is also a SVRA; it is mostly utilized by all-terrain vehicle riders. The 323 acres of parkland are exclusively for day utilization and no camping, shooting or hunting is allowed.

LOS ANGELES COUNTY

Los Angeles County has 916,205 acres of parkland, a majority of which is under the jurisdiction of the federal government (CPAD 2022). This total includes parkland owned by the federal, state, county, and city as well as special district, nonprofit, private, and joint parkland (CPAD 2022). The County maintains approximately 73,000 acres of parklands, including 182 parks (CLADPR 2023a). Over 92 percent of the total parkland is open access and less than one percent allows no public access. The Los Angeles County General Plan has established a standard of 4 acres of local parkland per 1,000 residents in the unincorporated areas and 6 acres of regional parkland per 1,000 residents of the total population in Los Angeles County. According to the County Department of Parks and Recreation Five-Year (2023-2028) Strategic Plan, the County averages 3.3 park acres per 1,000 residents; however nearly 80 percent of County parks have less than 3.3 acres available to their surrounding communities, indicating that parks likely experience heavy usage due to population burden (CLADPR 2023a). With a total population of approximately 10,046,000 in 2019, there are 91.2 recreational park and protected open space acres per 1,000 inhabitants, which is higher than the set overall standard (SCAG 2023).

Los Angeles County has 182 County parks and 23 state parks, the most of any county in the SCAG region (CLADPR 2023a; CPAD 2022). Parks in Los Angeles include beaches, picnic areas, sports fields and courts, and hiking and camping opportunities. There are also multiple special use facilities, single purpose facilities serving greater regional recreational or cultural needs, such as the Hollywood Bowl (CLADPR 2023b). Prominent parks in Los Angeles County include Santa Catalina Island Regional Park, Griffith Park, Topanga State Park, and the Antelope Valley Poppy Reserve.

ORANGE COUNTY

Orange County contains 151,471 acres of protected parkland, the majority of which is controlled on a federal or county level (CPAD 2022). This total includes parkland owned by the federal, state, county, and city as well as special district, nonprofit, private, and joint parkland (CPAD 2022). Orange County General Plan (2014) established parkland standards of 2.5 acres of local parkland per 1,000 residents in unincorporated areas and 6 acres of regional parkland per 1,000 residents (COPWDS 2015). With a total population of approximately 3,191,000 people, the County provides about 47.5 acres of recreational park and protected open space acres per 1,000 residents, far surpassing regional parkland standards (SCAG 2023).

Orange County maintains 25 urban and wilderness parks, comprised of 60,000 acres including historical sites, beaches and harbors, and 150 miles of paved regional trails and 350 miles of off-road trails. Additionally, there

are a host of local parks, beaches, and nature preserves (County of Orange Parks 2018). Prominent parks include Laguna Coast Wilderness Park, Carbon Canyon Regional Park and Irvine Regional Park.

RIVERSIDE COUNTY

Riverside County has 2,974,783 acres of protected parkland, over 2.8 million of which are open access (CPAD 2022). This total includes parkland owned by the federal, state, county, and city as well as special district, nonprofit, private, and joint parkland (CPAD 2022). Seven regional parks in the area cover approximately 23,317 acres (CRPD 2015a). The County does not have set standards regarding parklands but the vast amount of open space, the second-most in the SCAG region, allow for approximately 1,247 acres of recreational park and protected open space acres per 1,000 residents based on a 2019 population of 2,386,000 people (SCAG 2023). Riverside County parks include Joshua Tree National Park, Anza-Borrego State Park, and the Salton Sea State Recreation Area.

SAN BERNARDINO COUNTY

San Bernardino has the most open space and protected parkland out of all the counties in the SCAG region. It maintains a total of 8,519,966 acres of protected parkland, nearly 99 percent of which are open access (CPAD 2022). This total includes parkland owned by the federal, state, county, and city as well as special district, nonprofit, private, and joint parkland (CPAD 2022). The 2007 General Plan denotes a standard of 2.5 acres of regional parkland per 1,000 residents (CSBLUSD 2007). The 2020 General Plan does not provide an update to this standard (CSBLUSD 2020). With a population of approximately 2,175,000 people, the County provides about 3,917 acres of recreational park and protected open space acres per 1,000 residents, far surpassing regional parkland standards (SCAG 2023).

The San Bernardino Regional Parks Department operates 11 regional parks. Numerous County special districts operate local parks in many unincorporated communities of the County. These districts operate independently from the County government and are financed by local taxes within each respective district boundary. The County also includes wilderness areas that are mostly under the jurisdiction of the BLM, including the Sand to Snow National Monument and the Mojave Trails National Monument (CSBLUSD 2020).

VENTURA COUNTY

Ventura County is home to 657,399 acres of protected parkland and open space (CPAD 2022). This total includes parkland owned by the federal, state, county, and city as well as special district, nonprofit, private, and joint parkland (CPAD 2022). The County maintains 13 regional parks, 23 county parks, and a multitude of beach front parks and marinas, and community parks. The County also operates the Hungry Valley SVRA, 18,780 acres between Los Angeles and Ventura counties that are open to vehicular use, trail use, and camping (California State Parks 2023c). Ventura County does not specify parkland and open space standards but with a population of approximately 849,000 persons, the County provides roughly 774 acres of recreational park and protected open space acres per 1,000 residents (SCAG 2023).

3.16.2 REGULATORY FRAMEWORK

The federal government sets public recreation standards for protection of publicly owned recreation areas; scenic, historic, and recreational trails; national forests, and recreational fisheries from conversion to non-compatible land uses that may include transportation projects through the recreational resource. The state sets

recreation standards for protection of public parkland and establishment of new parkland to meet the needs of a growing population as a result of development projects. The provision of new parkland and recreational facilities is generally subject to local general plan policies.

FEDERAL

SECTION 4(F) OF THE DEPARTMENT OF TRANSPORTATION ACT OF 1966

Section 4(f) of the Department of Transportation Act (Public Law 89-670) was enacted as a means of protecting publicly owned public parks, recreation areas, and wildlife/waterfowl refuges as well as historic sites of local, state, or national significance, from conversion to transportation uses.

The provision states that the Secretary of the U.S. Department of Transportation may approve a transportation project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land from an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, recreation area, refuge, or site) only if (FHA 2023):

- There is no feasible and prudent avoidance alternative to the use of land; and the action includes all possible planning to minimize harm to the property resulting from such use; or
- The Administration determines that the use of the property will have a de minimis impact.

NATIONAL TRAILS SYSTEM ACT

The National Trails System Act (Public Law 90-543) was established by Congress in 1968 to establish a network of scenic, historic, and recreational trails. The act defined four categories of national trails: recreation trails, scenic trails, historic trails, and connecting or side trails. Trails within park, forest, and other recreation areas administered by the Secretary of the Interior or the Secretary of Agriculture or in other federally administered areas may be established and designated as "National Recreation Trails" by the appropriate Secretary. Since the National Trails System Act was enacted, the list of qualifying national scenic trails and national historic trails has grown from the initial two trails (the Appalachian National Scenic Trail and Pacific Crest National Scenic Trail) to the current list, which includes 11 national scenic trails and 19 historic trails. In addition, more than 1,000 national recreation trails have been designated nationwide, 91 of which are in California (USINRPS 2019; American Trails 2023).

NATIONAL FORESTS LAND MANAGEMENT PLANS

Each of the four Southern California national forests (Cleveland National Forest, Los Angeles National Forest, San Bernardino National Forest, and Los Padres National Forest) is included in the Southern California National Forests Vision. The Southern California National Forests Vision (forest plans) has created individual land management plans for each of the four Southern California national forests. The land management plans include strategic programmatic direction for managing the land in each national forest and its resources for the next 10 to 15 years. The plans include sections on resource management, public use and enjoyment, facilities operation and maintenance, commodity and commercial uses, and fire management (USDA 2005).

EXECUTIVE ORDER 12962—RECREATIONAL FISHERIES

The objective of Executive Order 12962, dated June 7, 1995, is the conservation, restoration, and enhancement of aquatic systems to provide for increased recreational fishing. Under the executive order, federal agencies shall improve the quantity function, sustainable productivity, and distribution of U.S. aquatic resources for recreational fishing opportunities by:

- Developing and encouraging government-private sector partnerships
- Identifying recreational fishing opportunities
- Implementing sound aquatic conservation and restoration practices
- Providing access and promoting awareness
- Supporting outreach programs
- Implementing laws
- Establishing cost-share programs
- Evaluating the effects of federally funded, permitted, or authorized actions on aquatic resources and recreational fishing
- Assisting private landowners to conserve and enhance aquatic resources

LAND AND WATER CONSERVATION FUND ACT, SECTION 6(F)(3)

Section 6(f)(3) of the Land and Water Conservation Fund Act (LWCF Act) of 1965 (16 U.S. Code Section 460l et seq.) contains provisions to protect federal investments in park and recreation resources and the quality of those assisted resources. The law recognizes the likelihood that changes in land use or development may make park use of some areas purchased with LWCF Act funds obsolete over time, particularly in rapidly changing urban areas, and provides for conversion to other use pursuant to certain specific conditions.

Section 6(f)(3) states that no property acquired or developed with assistance under Section 6(f)(3) shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he or she finds it to be in accordance with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he or she deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location.

This requirement applies to all parks and other sites that have been the subject of LWCF Act grants of any type and includes acquisition of park land and development or rehabilitation of park facilities. If a transportation project would have an effect upon a park or site that has received LWCF Act funds, the requirements of Section 6(f)(3) would apply (National Park Service 2023).

STATE

QUIMBY ACT

The Quimby Act was established by the California State Legislature in 1965 and codified as California Government Code Section 66477. The Quimby Act allows the legislative body of a city or county, by ordinance,

to require the dedication of land or impose a requirement of the payment of fees in lieu thereof, or a combination of both, for park or recreational purposes as a condition to the approval of a tentative tract map or parcel map. Under the Quimby Act, requirements for parkland dedications are not to exceed three acres of parkland per 1,000 persons residing within a subdivision, and in-lieu fee payments shall not exceed the proportionate amount necessary to provide three acres of parkland, unless the amount of existing neighborhood and community parkland exceeds that limit.

CALIFORNIA PUBLIC PARK PRESERVATION ACT

The primary instrument for protecting and preserving parkland is the State Public Park Preservation Act of 1971 (Public Resources Code Sections 5400–5409). Under the Act, cities and counties may not acquire any real property that is in use as a public park for any non-park use unless compensation or land, or both, are provided to replace the parkland acquired. This provides no net loss of parkland and facilities.

CALIFORNIA RECREATIONAL TRAILS PLAN OF 2002

The California Department of State Parks (California State Parks) is a trustee agency that owns and operates all state parks and participates in land use planning that affects state parklands. Pursuant to California Public Resources Code Section 5070, the California Recreational Trails Act, California State Parks has prepared the California Recreational Trails Plan in 1978, which was updated in 2002, with reports highlighting progress on the plan that are submitted to the State Legislature every two years (CDPR 2011). The California Recreational Trails Plan establishes 12 designated trail corridors that pass through the SCAG region with the intent of forming a statewide trail system that links mountain, valley, and coastal communities to recreational, cultural, and natural resources throughout the state (CDPR 2023b).

STATE OPEN SPACE STANDARDS

State planning law (Government Code Section 65560) provides a structure for the preservation of open space by requiring every city and county in the State to prepare, adopt, and submit to the Secretary of the Resources Agency a "local open-space plan for the comprehensive and long-range preservation and conservation of open space land within its jurisdiction." The following open space categories are identified for preservation:

- **Open space for public health and safety**, including but not limited to areas that require special management or regulation due to hazardous or special conditions.
- **Open space for the preservation of natural resources**, including but not limited to natural vegetation, fish and wildlife, and water resources.
- **Open space for resource management and production**, including but not limited to agricultural and mineral resources, forests, rangeland, and areas required for the recharge of groundwater basins.
- **Open space for outdoor recreation**, including but not limited to parks and recreational facilities, areas that serve as links between major recreation and open space reservations (such as trails, easements, and scenic roadways), and areas of outstanding scenic and cultural value.
- **Open space for the protection of Native American sites**, including but not limited to places, features, and objects of historical, cultural, or sacred significance such as Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines located on public property (further defined in California Public Resources Code Sections 5097.9 and 5097.993).

MITIGATION FEE ACT

The California Mitigation Fee Act, Government Code Sections 66000 et seq. allows cities to establish fees to be imposed on development projects for the purpose of mitigating the impact of development on a city's ability to provide specified public facilities. In order to comply with the Mitigation Fee Act a City must follow the following primary requirements: (1) Make certain determinations regarding the purpose and use of a fee and establish a nexus or connection between a development project or class of project and the public improvement being financed with the fee; (2) Segregate fee revenue from the General Fund in order to avoid commingling of capital facilities fees and general funds; (3) For fees that have been in the possession of a City for five years or more and for which the dollars have not been spent or committed to a project, the City must make findings each fiscal year.

LOCAL

LOS ANGELES COUNTY SIGNIFICANT ECOLOGICAL AREAS

The Hillside Management and Significant Ecological Areas Ordinance was originally adopted in 1982 and most recently amended in 2019 (CLADPR 2023c). Significant Ecological Areas (or SEA) in LA County are designated as such due to their biological resources. These areas include undisturbed (or lightly disturbed) habitat of threatened or valuable species, or areas that support species movement, and are appropriately sized to support sustainable populations of the local species. The program is designed to conserve the diversity of biological resources in LA County through conservation and more stringent development rules. The SEA Ordinance outlines the review process and development standards for these areas to ensure biodiversity and ecosystems will not be negatively impacted by development. There are 21 SEAs in LA County per the 2035 General Plan published in 2015.

ORANGE COUNTY TRANSPORTATION ASSOCIATION MEASURE M2

Also known as "OC Go," Measure M2 is a voter-approved sales tax extension of Measure M, which was approved in 1990 (OCTA 2023). This program is the funding source for county transportation projects as well as the Freeway Environmental Mitigation Program in Orange County. The Freeway Environmental Mitigation Program funds natural lands acquisitions and in turn, qualifying transportation projects undergo a streamlined California Environmental Quality Act (CEQA) review process. Thirty million dollars for approximately 1,300 acres of land and \$10 million on 350 acres of habitat restorations have been funded through Measure M2.

VENTURA COUNTY HABITAT CONNECTIVITY AND WILDLIFE CORRIDOR ORDINANCE

Formally adopted in May 2019, this ordinance establishes regulations for development on lands where animals travel between the Santa Monica Mountains National Recreation Area and the Los Padres National Forest. The ordinance includes restrictions on elements detrimental to species movement, such as fencing, certain types of lighting and development in riparian areas. To provide flexibility for compliance, exemptions are allowed for agricultural activities.

VENTURA COUNTY SAVE OPEN SPACE AND AGRICULTURAL RESOURCES (SOAR)

SOAR is a collection of voter initiatives to create City Urban Restriction Boundaries (CURB) in eight of the county's cities (CVRMA 1998). With these initiatives, re-zoning natural or agricultural lands for development

outside of a city's sphere of influence requires a majority vote approval from residents. In 2016, voters approved all of the initiatives for renewal, which extends the expiration date until 2050.

COUNTY AND CITY GENERAL PLANS

The most comprehensive land use planning, including that for recreational facilities, in the SCAG region is provided by county and city general plans, which local governments are required by state law to prepare as a guide for future development. The SCAG region spans six counties and 191 cities, all of which have general plans containing policies related to provision of recreational resources. Open space and recreation resources are normally addressed in two mandatory elements of the general plan: land use and open space. The land use element normally focuses on the distribution of recreation facilities and programs and an inventory of open space land, including those lands that provide opportunities for recreational activities. In contrast, the open space element focuses on open space for outdoor recreation, including but not limited to:

- Areas of outstanding scenic, historical, and cultural value
- Areas particularly suited for park and recreational purposes, including access to lakeshores, beaches, and rivers and streams
- Areas that serve as links between major recreational and open-space reservations, including utility easements, banks of rivers and streams, trails, and scenic highway corridors

The six county general plans address the majority of the regional open space, beyond that provided by the national forest, national parks, and wildlife refuges:

- **Imperial County:** Parks and Recreation Element (CIPDS 2008) and Conservation and Open Space Element (CIPDS 2016) of County General Plan
- **Los Angeles County:** Chapter 9: Conservation and Natural Resources Element (CLADPR 2022b) and Chapter 10: Parks and Recreation Element (CLADPR 2022a) of County General Plan
- **Orange County:** Chapter VI. Resources Element (COPWDS 2012) and Chapter VII. Recreation Element (COPWDS 2015) of County General Plan
- **Riverside County:** Chapter 5: Multipurpose Open Space Element and Chapter 10: Healthy Communities Element (CRPD 2015b) of County General Plan
- **San Bernardino County:** Natural Resources Element (CSBLUSD 2020) of County General Plan
- **Ventura County:** Conservation and Open Space Element (CVRMAPD 2020a) and Public Facilities, Services, and Infrastructure Element (CVRMAPD 2020b) of County General Plan

Each city in the SCAG region has its own respective general plan that helps provide guidance for the growth and development of the city and contains measures to maintain and/or enhance open space within each of the city's jurisdictions. Each city's general plan varies in level of detail and necessary measures to preserve open space. Although city general plans are not required to contain parks and recreation sections, cities often choose to include this section to provide measures to maintain and/or enhance city parks and recreation areas.

Additional plans and ordinances at the master plan level, city-level, and specific plan level may also apply within the SCAG region.

ZONING

City and county zoning codes provide the set of detailed requirements that implement general plan policies at the level of the individual parcel. Zoning codes present standards for different uses and identifies which uses are allowed in the various zoning districts of the jurisdiction. Since 1971, state law has required the city or county zoning code to be consistent with the jurisdiction's general plan (OPR 2017).

3.16.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to recreation if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- Include recreational facilities or require construction or expansion of recreational facilities that might have an adverse physical effect on the environment;

In addition, the following criterion from Section 3.15, *Public Services*, is addressed along with recreation:

- IMPACT PS-5: Result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, or other performance objective.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis of recreation considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

The need for or deficiency in adequate park facilities to serve residents in the SCAG region is not in and of itself a CEQA impact, but a social or economic impact (*City of Hayward v. Board of Trustees* [2015] 242 Cal.App.4th 833, 843). However, pursuant to CEQA Guidelines Appendix G, the determination of whether there is a significant impact related to parks or other recreational facilities is based on whether a significant impact could result from the construction and subsequent operation of new or altered parks and/or recreational facilities or where existing park and recreational facilities would be substantially physically deteriorated as a result of the implementation of the Plan.

The methodology for determining the significance of recreation impacts compares the existing conditions (2022) to future (2050) conditions, as required in CEQA Guidelines Section 15126.2(a). Baseline conditions were

established for the acreage of local and regional parkland per 1,000 population in each county to determine existing park LOS, and the 2050 anticipated population growth forecast was used to calculate the quantity of parkland needed to meet future recreation needs.

Impacts were evaluated qualitatively based on implementation of the Plan, which generally encourages growth in PDAs and minimizes growth in GRRAs. Plan impacts were evaluated in the context of assumptions that protected recreational areas (such as national forests) would remain protected.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in Section 3.16.2, *Regulatory Framework*) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT REC-1 Potential to increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Significant and Unavoidable Impact – Mitigation Required

Plan implementation would have the potential to increase use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration would occur, constituting a potentially significant impact. Specifically, the Plan's transportation improvements and policies aim to accommodate the anticipated population increase of nearly 2.1 million persons over the lifetime of the Plan. The Plan also encourages infill development and redevelopment primarily in PDAs located within urbanized areas. Therefore, it is possible that existing neighborhood parks and other recreational facilities would see an increase in usage, which, in turn, may result in substantial physical deterioration of facilities. It is also possible that as population in urban centers increases, there may be more demand for parks outside of PDAs, particularly for PDAs in suburban and rural areas that are not well served by existing local parks and recreational facilities. As such, the Plan's overall improvement of the transportation network could also result in increased accessibility and use of regional parks.

Local parks and recreational facilities are often overburdened in part because they are smaller and serve more densely populated areas. As the Plan generally emphasizes compact development, local parks may become increasingly overburdened. Such impacts may be somewhat reduced as individual projects are frequently required to include small private open space as well as larger community open space. However, such spaces do not replace local parks. Accessibility to parks is also a public health and equity concern and is addressed under the Equity Analysis Technical Report in the Plan. Urbanized areas, such as the low-income communities of Westlake and Southeast Los Angeles in the City of Los Angeles, are significantly park poor, with less than half an acre of park space per 1,000 residents (LADCP 2015). Construction of transportation projects, as well as

development in underutilized urban (opportunity) areas, would have the potential to impact recreational facilities both directly and indirectly. Direct impacts would occur through the acquisition of recreational and parklands to accommodate transportation projects and development, or through an increase in the population resulting in an exceedance of a park acre per 1,000 residents threshold resulting in increased use of existing parks. Indirect impacts would occur through development of transportation projects in proximity to recreational facilities, which would increase access to park facilities and concentrate development within PDAs, which would increase demand for and the use of existing parks.

For some areas there may be sufficient parkland available in 2050, while other areas may see a substantial increase in population that substantially impacts existing parks/recreational. As a result, by 2050 some areas and parks could have a lower LOS as a result of increasing population with little to no associated increase in park area. While it is unlikely that existing parks would be developed with urban uses, in some cases this could occur as communities seek to provide homeless shelters and low-income housing on government-owned land. Such reuse of park space would exacerbate impacts on other remaining parks. These impacts are expected to disproportionately affect urban centers where land prices are high. All of these factors are expected to result in existing parks and recreational facilities experiencing increased use and associated physical deterioration or accelerated physical deterioration.

Many of the transportation projects included in the Plan are located in urbanized areas, and therefore, are not likely to result in direct significant impacts to undisturbed lands or large tracts of land designated as open space. Additionally, as described in Section 3.16.2, *Regulatory Framework*, designated parklands are well protected at the local, state, and federal level.

The Plan would encourage growth in PDAs that generally have greater access to multiple modes of transportation or where trip origins and destinations are closer together, allowing for shorter trips. According to SPM data, the Plan's PDAs are projected to accommodate the majority of the region's future households and jobs in 2050 under the Plan (SCAG 2023). Many of the areas where density would be expected to increase are areas with less local park space, resulting in increased use and the potential for accelerated deterioration of existing local parks and recreational facilities.

The Plan includes Regional Policies and Implementation Strategies for active transportation, including expansion of the regional greenway network, regional and local bikeway network, and short-trip strategies to improve sidewalk quality and use of complete streets when making roadway improvements. These strategies are integrated with land use patterns such as livable corridors, neighborhood mobility areas, as well as with innovative technologies such as neighborhood electric micro-mobility vehicles through scooter and bike share programs. While the Plan has the potential to result in a significant impact on existing neighborhood and regional parks or other recreational facilities, implementation of such strategies can facilitate the creation of new neighborhood and regional recreational facilities and opportunities.

Overall, the Plan would have the potential to increase the use of existing local and regional parks and other recreational facilities; therefore, the impact with respect to physical deterioration of existing parks and recreational facilities is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-LU-1 through SMM-LU-3, SMM-POP-1, and SMM-POP-2.

SMM-REC-1 SCAG shall continue to encourage and recommend approaches to help local jurisdictions improve residential access to, and use of, existing neighborhood and regional parks through information sharing and regional forums for collaboration, such as the Equity Working Group.

PROJECT-LEVEL MITIGATION MEASURES

PMM-REC-1 In accordance with provisions of CEQA Guidelines Sections 15091(a)(2) and 15126.4(a)(1)(B), a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects on the use of existing neighborhood and regional parks or other recreational facilities, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:

- a) Prior to the issuance of permits, where projects require the construction or expansion of recreational facilities or the payment of equivalent Quimby fees, consider increasing the accessibility to natural areas and lands for outdoor recreation from the proposed project area, in coordination with local and regional open space planning and/or responsible management agencies.
- b) Prior to the issuance of permits, where projects require the construction or expansion of recreational facilities or the payment of equivalent Quimby fees, encourage patterns of urban development and land use which reduce costs on infrastructure and make better use of existing facilities, using strategies such as:
 - i. Increasing the accessibility to natural areas for outdoor recreation
 - ii. Utilizing "green" development techniques
 - iii. Promoting water-efficient land use and development
 - iv. Encouraging multiple uses, such as the joint use of schools
 - v. Including trail systems and trail segments in General Plan recreation standards

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to the increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration would occur or be accelerated, provision of or need for new or expanded recreational facilities, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of

land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT REC-2 **Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.**

IMPACT PS-5 **Result in substantial adverse physical impacts associated with the provision of new or physically altered park facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives.**

Significant and Unavoidable Impact – Mitigation Required

As discussed in Section 3.0, *Introduction to the Analysis*, due to the similarities of the topic areas, Impact REC-2 and Impact PS-5 are addressed together.

Implementation of the Plan would result in the construction and expansion of recreational facilities, including parks and trails (linear parks), a regional greenway network, a regional bikeway network, and local bikeway networks, which could result in adverse physical effects on the environment. According to SPM data, the Plan anticipates that the majority of the population growth would occur within PDAs by 2050, which would increase the demand for and use of recreational facilities within these areas. To maintain acceptable recreation service ratios, the provision of new or physically altered park and recreational facilities would be required, which would result in significant impacts. An effective regional transportation system would increase accessibility to such destinations, for tourists and residents alike. Improved access to outdoor spaces would benefit the overall health and well-being of residents, as well as public education and environmental awareness. Recreational facilities and programs can also promote public health. For example, the Los Angeles County Department of Parks and Recreation, in joint partnership with the Los Angeles County Parks Foundation, enacted the Power of Play program, which is centered round ensuring equitable, accessible, and affordable play and learning programs for youth (CLADPR 2022c).

As discussed in Section 3.14, *Population and Housing*, the total population in the SCAG region is expected to increase by nearly 2.1 million people by 2050, independent of the Plan. The Plan assumes the majority of new households would be constructed within PDAs, which are generally located in suburban and urban environments which have access to multiple modes of transportation and/or where trip origins and destinations are closer together, allowing for shorter trips. This increased density in urban and suburban areas will increase demand for parks and recreational facilities in these areas. New and/or expansion of existing parks become increasingly difficult to provide as space is limited and land is expensive. When park development and expansion in urban areas occurs, it is beneficial but can also result in environmental impacts associated with construction and operation. For example, park/trail construction can result in noise and air quality impacts as well as long-term noise and night lighting impacts. See Section 3.3, *Air Quality*, and Section 3.13, *Noise*, for a discussion of air quality and noise impacts from construction and mitigation measures to reduce these impacts. See Section 3.1, *Aesthetics*, for a discussion of nighttime lighting impacts and mitigation measures to reduce these impacts. Therefore, the impact of potential construction of new and/or expanded park and recreational facilities in order

to maintain acceptable service ratios or other performance objectives is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-LU-1 through SMM-LU-3, SMM-POP-1 and SMM-POP-2, and SMM-REC-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-REC-1, PMM-AQ-2, and PMM-NOI-1.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts, but given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to the provision of or need for new or expanded parks and recreational facilities in order to maintain acceptable service ratios or other performance objectives, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as air quality management plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to recreation, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

3.16.4 SOURCES

- American Trails. 2023. NRT Database. <http://www.nrtdatabase.org/>. Accessed March 13, 2023.
- California Department of Parks and Recreation (CDPR). 2011. Trails Plan – 2011 Progress Report. http://www.parks.ca.gov/?page_id=25677. Accessed March 13, 2023.
- California Department of Parks and Recreation (CDPR). 2023a. Find a Park by County. <http://www.parks.ca.gov/parkindex>. Accessed March 13, 2023.
- California Department of Parks and Recreation (CDPR). 2023b. California Recreational Trails Plan Trail Corridors. http://www.parks.ca.gov/?page_id=25680. Accessed March 13, 2023.
- California Government Code. Title 7, Division 1, Chapter 3, Article 10.5, Open Space Lands [65560–65570].
- California Government Code. Title 7, Division 1, Chapter 5: Fees for Development Project [66000–66008].
- California Public Resources Code. Sections 5097.9–5097.991, Native American Historical, Cultural, and Sacred Sites.
- California Public Resources Code. Division 5, Chapter 1.76, Native American Historic Resource Protection Act [5097.993–5097.994].
- California Public Resources Code. Division 5, Chapter 2.5: Preservation of Public Parks [5400–5409].
- Assembly Bill 1191: Quimby Act.
- California Protected Areas (CPAD). 2022. CPAD Database. December. <https://data.cnra.ca.gov/dataset/california-protected-areas-database>. Accessed March 13, 2023.
- California State Parks. 2023a. Ocotillo Wells SVRA. http://www.ohv.parks.ca.gov/?page_id=1217. Accessed March 13, 2023.
- California State Parks. 2023b. Herber Dunes SVRA. http://www.ohv.parks.ca.gov/?page_id=25642. Accessed March 13, 2023.
- California State Parks. 2023c. Hungry Valley SVRA. http://www.ohv.parks.ca.gov/?page_id=1192. Accessed March 13, 2023.
- City of Los Angeles Bureau of Engineering. 2019. Parklets. <https://engpermitmanual.lacity.org/construction-permits/technical-procedures/06-parklets>. Accessed September 6, 2023.
- City of Los Angeles Department of City Planning (LADCP). 2015. *Plan for a Healthy Los Angeles: A Health and Wellness Element of the General Plan*. March. <http://planning.lacity.org/cwd/gnlpln/PlanforHealthyLA.pdf>.
- County of Imperial Planning & Development Services (CIPDS). 2008. *Imperial County General Plan: Parks and Recreation Element*. <https://www.icpds.com/planning/land-use-documents/general-plan/parks-element>. Accessed October 24, 2022.
- CIPDS. 2015. *Land Use Element of the Imperial County General Plan*. Approved October 6. <https://www.icpds.com/assets/planning/land-use-element/land-use-element-2015.pdf>.
- CIPDS. 2016. *Imperial County General Plan: Conservation and Open Space Element*. <https://www.icpds.com/planning/land-use-documents/general-plan/conservation-and-open-space-element>. Accessed October 24, 2022.
- CIPDS. 2023. County Parks. <https://publicworks.imperialcounty.org/county-parks/>. Accessed October 24, 2022.

- County of Los Angeles Department of Parks and Recreation (CLADPR). 2022a. *Los Angeles County 2035 General Plan*. Chapter 10, Parks and Recreation Element. July 14, 2022. https://planning.lacounty.gov/wp-content/uploads/2022/11/10.0_gp_final-general-plan-ch10.pdf.
- CLADPR. 2022b. *Los Angeles County 2035 General Plan*. Chapter 9, Conservation and Natural Resources Element. https://planning.lacounty.gov/wp-content/uploads/2022/11/9.0_gp_final-general-plan-ch9.pdf.
- CLADPR. 2022c. "LA County Parks and LA County Parks Foundation Launch Power of Play Initiative to Provide Youth with Equal Access to Sports and Recreation Programs." August 22. <https://lacounty.gov/2022/08/02/la-county-parks-and-la-county-parks-foundation-launch-power-of-play-initiative-to-provide-youth-with-equal-access-to-sports-and-recreation-programs/#:~:text=Emphasizing%20heavily%20on%20equitable%20play%20and%20learning%20programs,Art%20and%20Mathematics%29%20Summer%20Camps%20and%20after-school%20programs>. Accessed August 24, 2023.
- CLADPR. 2023a. Five-Year Strategic Plan (2023-2028). Adopted March. https://parks.lacounty.gov/wp-content/uploads/2023/02/2023DPR_StrategicPlan.pdf. Accessed March 14, 2023.
- CLADPR. 2023b. Parks Overview. <https://parks.lacounty.gov/park-overview/>. Accessed March 13, 2023.
- CLADPR. 2023c. Significant Ecological Areas Program. <http://planning.lacounty.gov/site/sea/home/>. Accessed September 11, 2019.
- County of Orange Parks. 2018. OC Parks Strategic Plan. Approved December 4, 2018. <https://www.ocparks.com/sites/ocparks/files/import/data/files/82682.pdf>.
- COPWDS. 2012. General Plan: Chapter VI Resources Element. <https://ocds.ocpublicworks.com/sites/ocpwocds/files/import/data/files/40235.pdf>.
- County of Orange Public Works Development Services (COPWDS). 2015. General Plan: Chapter VII. Recreation Element. <https://ocds.ocpublicworks.com/sites/ocpwocds/files/import/data/files/24960.pdf>.
- County of Orange Transportation Association (OCTA). 2023. OC GO Local Tax Dollars at Work. [http://octa.net/About-OC-Go/OC-Go-\(2011-2041\)/](http://octa.net/About-OC-Go/OC-Go-(2011-2041)/). Accessed September 11, 2019.
- County of Riverside Planning Department (CRPD). 2015a. County of Riverside General Plan Chapter 5: Multipurpose Open Space Element. December. https://planning.rctlma.org/Portals/14/genplan/general_Plan_2017/elements/OCT17/Ch05_MOSE_120815.pdf?ver=2017-10-11-102103-833. Accessed October 24, 2022.
- CRPD. 2015b. Current General Plan Documents. <https://planning.rctlma.org/General-Plan-Zoning/General-Plan>. Accessed October 24, 2022.
- County of San Bernardino Land Use Service Division (CSBLUSD). 2007. County of San Bernardino 2007 General Plan. <http://www.sbcounty.gov/Uploads/lus/GeneralPlan/FINALGP.pdf>.
- CSBLUSD. 2020. San Bernardino Countywide Plan. October. <https://countywideplan.com/policy-plan/natural-resources/>. Accessed March 13, 2023.
- County of Ventura Resource Management Agency, Planning Division (CVRMAPD). 2020a. *Ventura County General Plan*. Conservation and Open Space Element. https://docs.vcrma.org/images/pdf/planning/plans/Final_2040_General_Plan_docs/VCGPU_06_COS_Element_2020_09_15_web.pdf.

- CVRMAPD. 2020b. *Ventura County General Plan*. Public Facilities, Services, and Infrastructure Element. https://docs.vcrma.org/images/pdf/planning/plans/Final_2040_General_Plan_docs/VCGPU_05_PFS_Element_2020_09_15_web.pdf.
- County of Ventura Resources Management Agency (CVRMA). 1998. *County of Ventura Measure (SOAR) Save Open space and Agricultural Resources Initiative – 2050*. https://docs.vcrma.org/images/pdf/planning/ordinances/SOAR_Measure_C_2050.pdf.
- Executive Order 12962. June 7, 1995.
- Federal Highway Administration (FHWA). 2023. Environmental Review Toolkit: Section 4(f). <https://www.environment.fhwa.dot.gov/legislation/section4f.aspx>. Accessed October 24, 2022.
- Governor’s Office of Planning and Research (OPR). 2017. State of California General Plan Guidelines. http://opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf.
- National Park Service. 2023. Land and Water Conservation Fund. <https://www.nps.gov/subjects/lwcf/index.htm>. Accessed March 13, 2023.
- National Recreation and Park Association (NRPA). 2010. *Why Parks and Recreation are Essential Public Services*. <https://www.nrpa.org/uploadedFiles/nrpa.org/Advocacy/Resources/Parks-Recreation-Essential-Public-Services-January-2010.pdf>.
- NRPA. 2023. NRPA Parks Metrics <https://www.nrpa.org/publications-research/ParkMetrics/>. Accessed March 13, 2023.
- Public Law 90-543. National Trails System Act.
- Southern California Association of Governments (SCAG). 2020a. *Connect SoCal 2020: 2020-2045 Regional Transportation Plan/ Sustainable Communities Strategy Programmatic Environmental Impact Report (PEIR)*. Certified May 7, 2020. <https://scag.ca.gov/certified-2020-peir>. Accessed March 13, 2023.
- SCAG. 2020b. *Connect SoCal 2020: 2020–2045 Regional Transportation Plan/Sustainable Communities Strategy*. Active Transportation Appendix. Certified September 3. <https://scag.ca.gov/read-plan-adopted-final-connect-socal-2020>. Accessed March 13, 2023.
- SCAG. 2023. SCAG 2023 Modeling SPM output. July 31, 2023.
- U.S. Department of Agriculture (USDA). 2005. Land Management Plan: Part 1 Southern California National Forests Vision. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5166876.pdf.
- U.S. Department of the Interior National Park Service (USINRPS). 2019. Reference Manual 45: National Trails System. https://www.nps.gov/subjects/policy/upload/RM-45_2-6-2019.pdf.

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3.17 TRANSPORTATION

This section of the 2024 PEIR describes the existing traffic and transportation networks within the SCAG region, sets forth the regulatory framework that affects transportation, and analyzes the potential impacts of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible. Additional discussion of transportation conformity is provided in Section 3.3, *Air Quality*. The analysis on emergency access is included in Section 3.9, *Hazards and Hazardous Materials*. Additional discussions of vehicle mile traveled (VMT), Senate Bill 375, Scoping Plans, and Senate Bill 743 are provided in Section 3.8, *Greenhouse Gas Emissions*.

3.17.1 ENVIRONMENTAL SETTING

Southern California's extensive roadway network facilitates the constant movement of people and goods throughout the area. The region's complex intermodal network facilitates transportation via highways, transit, passenger and freight rail, airports, and seaports. The regional roadway system consists of an interconnected network of interstates, freeways, highways, toll roads, arterial streets, and local streets. This roadway network allows for the operation and movement of private vehicles, commercial vehicles, private and public buses, and heavy-duty trucks. Active transportation modes, such as biking and walking use non-motorized transportation facilities, including bikeways and walkways that often share spaces with roadway facilities. As traffic worsens and pressure to act on climate change mounts, local jurisdictions have placed an emphasis on the importance of the integration of active transportation modes in transportation planning.

The regional public transit system includes local shuttles, municipal and area-wide bus operations, light rail transit operations, regional commuter rail services, and interregional passenger rail service. The freight railroad network includes an extensive system of private railroads and several publicly-owned freight rail lines serving industrial cargo and goods. The airport system consists of commercial, general, and military aviation facilities serving passenger, freight, business, recreational, and defense needs. The region's seaports support substantial international and interregional freight movement and tourist travel. Intermodal terminals, consisting of freight processing facilities, transfer, store, and distribute goods across the region and the globe.

As noted in Chapter 3.0, *Environmental Setting, Impacts, and Mitigation Measures*, of this 2024 PEIR, the discussions presented below regarding the environmental setting for this 2024 PEIR are focused on conditions and corresponding data from 2019, which is the most recent complete year for which transportation-related conditions and associated activity were not affected by the COVID-19 pandemic. Starting in early 2020, vehicular activity, goods movement, air travel, and transit ridership were all drastically reduced on a global scale as result of pandemic-related quarantines, stay-at-home orders, and other restrictions that severely limited the ability of people to physically travel, congregate, and interact. While these pandemic-related restrictions and mobility trends have largely been lifted, overall travel and movement patterns and associated volumes have yet to normalize (and may never revert to pre-pandemic conditions given a number of factors such as the substantial increase in work-from-home employment and modified commuting activity that have been established since 2020). In order to provide a reliable comparison and consistent evaluation of impacts of the Plan, a 2019 baseline condition is utilized in this section. Where appropriate, however, more recent data is provided, and discussion of more recent conditions is presented for context.

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for transportation follow:

- *California Transportation Plan (CTP)*: This is a statewide, long-range transportation plan to meet future mobility needs and reduce greenhouse gas emissions (Caltrans 2021). The CTP defines performance-based goals, policies, and strategies to achieve the collective vision for California's future, statewide, integrated, multimodal transportation system.
- *Congestion Management Program (CMP)*: This is a state-mandated program enacted by the legislature to address the increasing concern that urban congestion is affecting economic vitality and diminishing quality of life in some communities. The CMP provides the analytical basis for transportation decisions through the State Transportation Improvement Program (STIP).
- *Congestion Management Agency (CMA)*: A CMA is a county-wide body comprised of local elected officials. The CMA administers the CMP to keep traffic levels manageable. In the past, state gas tax revenue had historically been used to fund roads and highways. With the passage of Proposition 111 in the 1990s, state gas tax and directed revenue are provided to fund road, bicycle, pedestrian, and public transit projects in addition to highways to help manage congestion for multi-modal purposes. CMA is charged with coordinating land use, air quality, and transportation planning among the local jurisdictions, including monitoring the levels of congestion on major roads and analyzing the impacts that a proposed development will have on future traffic congestion.
- *Complete Streets*: Planned, designed, operated and 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.

Complete Streets is a transportation policy and design approach that requires streets to be planned, designed, operated, and maintained to enable safe, convenient, and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation.

- *Goods Movement*: Refers to the transportation of for-sale products from the location of their manufacture or harvest to their final retail destination.
- *Level of Service (LOS)*: In the context of traffic analysis, this is a measure used to relate the quality of traffic service. LOS is used to analyze highways by categorizing traffic flow and assigning quality levels of traffic based on performance measures such as speed and density.
- *Million Annual Passengers (MAP)*: Number of people taking public transit, airline flight, bus, or train calculated expressed in the unit of 100,000 in terms of boarding counts.
- *Peak Hour*: The part of the day during which traffic congestion on roads and crowding on public transport is at its highest.
- *Safety*: Protection of persons and property from unintentional damage or destruction caused by accidental or natural events.
- *Transportation Demand Management (TDM)*: Strategies and actions directed at influencing the mode, frequency, time, route, or length of travel in order to maximize the efficiency and sustainable use of transportation facilities. TDM strategies typically include providing information on travel choices; managing parking, marketing and communications, financial incentives, and disincentives; providing and operating

facilities that make the use of non-solo driving more attractive; and encouraging telework and flexible work strategies.

- *Transportation System Management (TSM)*: Transportation system management refers to a set of strategies that largely aim to reduce greenhouse gas (GHG) emissions by reducing congestion, primarily by improving transportation system capacity and efficiency. TSM strategies may also address a wide range of other externalities associated with driving such as pedestrian/driver safety, efficiency, congestion, travel time, and driver satisfaction. Some TSM strategies are designed to reduce total and systemic congestion and improve system-wide efficiency, while other strategies target particularly problematic areas where improvements could greatly affect congestion, safety, efficiency, and GHG emissions.
- *Vehicle Miles Traveled (VMT)*: The number of VMT provides an indicator of the travel levels of the roadway system by motor vehicles in a given time period. This number is estimated based upon traffic volume counts and roadway length.
- *Vehicle Hours of Delay (VHD)*: The number of VHD provides an indicator of congestion levels of a roadway.

CIRCULATION SYSTEM

COMMUTE PATTERNS AND TRAVEL CHARACTERISTICS

The existing transportation network serving the SCAG region supports the movement of people and goods. On a typical weekday in the six-county region, the transportation network supports almost 450 million VMT and over 12 million vehicle hours of travel (VHT). Of this total, over half occur in Los Angeles County (see **Table 3.17-1, Summary of Existing (2019) Daily and Per Capita Vehicle Miles of Travel**, and **Table 3.17-2, Summary of Existing (2019) Daily and Per Capita Vehicle Hours of Travel**).

TABLE 3.17-1 Summary of Existing (2019) Daily and Per Capita Vehicle Miles of Travel

COUNTY	VEHICLE MILES OF TRAVEL (VMT)						PER CAPITA VMT	
	A.M. PEAK PERIOD		P.M. PEAK PERIOD		DAILY		2019 POPULATION	DAILY
	MILES	% ¹	MILES	% ¹	MILES	% ¹	PERSONS	MILES
Imperial	1,195,394	1%	1,813,790	1%	6,962,832	2%	181,000	38.47
Los Angeles	44,066,280	50%	62,556,412	50%	220,265,652	50%	10,046,000	21.93
Orange	15,257,985	17%	21,552,117	17%	76,502,832	17%	3,191,000	23.98
Riverside	11,378,558	13%	16,240,138	13%	59,090,566	13%	2,386,000	24.77
San Bernardino	11,914,484	14%	16,697,557	13%	62,795,419	14%	2,175,000	28.87
Ventura	3,830,296	4%	5,302,749	4%	18,622,869	4%	846,000	22.01
Total	87,642,996	100%	124,162,762	100%	444,240,170	100%	18,827,000	23.60

Source: SCAG Modeling (2023)

Table Note:

1. Percentage of region

TABLE 3.17-2 Summary of Existing (2019) Daily and Percentage Vehicle Hours of Travel

COUNTY	VEHICLE HOURS OF TRAVEL (VHT)						PER CAPITA VHT	
	A.M. PEAK PERIOD		P.M. PEAK PERIOD		DAILY		2019 POPULATION	DAILY
	HOURS	% ¹	HOURS	% ¹	HOURS	% ¹	PERSONS	HOURS
Imperial	23,490	1%	36,970	1%	131,999	1%	181,000	0.73
Los Angeles	1,536,929	57%	2,238,034	57%	6,721,964	55%	10,046,000	0.67
Orange	455,884	17%	658,653	17%	2,072,554	17%	3,191,000	0.65
Riverside	288,835	11%	403,018	10%	1,350,455	11%	2,386,000	0.57
San Bernardino	304,535	11%	426,953	11%	1,448,043	12%	2,175,000	0.67
Ventura	101,906	4%	145,333	4%	459,970	4%	846,000	0.54
Total	2,711,579	100%	3,908,960	100%	12,184,986	100%	18,827,000	0.65

Source: SCAG Modeling (2023)

Table Note:

1. Percentage of region

Much of the existing travel in the SCAG region takes place during periods of congestion, particularly during the morning (6:00 AM to 9:00 AM) and evening peak periods (3:00 PM to 7:00 PM). Congestion can be quantified as the amount of travel that takes place in delay (vehicle hours of delay or VHD) and, alternately, as the percentage of all travel time that occurs in delay (defined as the travel time spent on the highway due to congestion, which is the difference between VHT at free-flow speeds and VHT at congested speeds). Existing travel delays and percent of regional VHT in delay ranges from a low of less than one percent delay in Imperial County on freeways and arterials to 67 percent in Los Angeles County (see Table 3.17-2).

There is variation in average travel distance from home to work, ranging from approximately 15 miles in Imperial County to approximately 21 miles in Riverside and San Bernardino Counties. The difference in average travel time during the peak hours ranges from a low of approximately 18 minutes in the a.m. peak hour in Imperial County to a high of approximately 33 minutes in San Bernardino County (Table 3.17-3). Home-to-work trip duration and distance are both greater for the inland counties of Riverside and San Bernardino, reflecting regional housing and employment distribution patterns (see **Table 3.17-3, Summary of Existing Work Trip Length**).

TABLE 3.17-3 Summary of Existing (2019) Trip Length and Duration

COUNTY	AVERAGE PERSON TRIP LENGTH		AVERAGE HOME-TO-WORK TRIP DURATION (MINUTES)		
	TRIP PURPOSE	AVERAGE PERSON TRIP LENGTH (MILES)	VEHICLE TRIPS (A.M. ONLY)	TRANSIT TRIPS (A.M. ONLY)	WALK/BIKE TRIPS (AM ONLY)
Imperial	Home-Based Work Trips	15.17	17.95	56.36	20.90
	Non-Work Trips	3.79	-	-	-
Los Angeles	Home-Based Work Trips	15.39	29.26	72.72	25.30
	Non-Work Trips	6.13	-	-	-
Orange	Home-Based Work Trips	15.26	23.56	99.81	22.98
	Non-Work Trips	6.09	-	-	-
Riverside	Home-Based Work Trips	21.16	31.89	124.30	22.98
	Non-Work Trips	6.33	-	-	-
San Bernardino	Home-Based Work Trips	21.59	32.92	127.83	22.70
	Non-Work Trips	6.15	-	-	-
Ventura	Home-Based Work Trips	16.56	28.53	121.06	20.98
	Non-Work Trips	5.74	-	-	-
Region	Home-Based Work Trips	16.70	28.77	76.62	24.25
	Non-Work Trips	6.12	-	-	-

Source: SCAG Modeling (2023)

Table Note: Only considers Home to work/business direct trips

The characteristics of home-to-work trip and all daily trips vary widely among counties (see **Table 3.17-4, Existing Travel Mode Split [Percentage of County Total]**). On average, vehicular trips account for approximately 92 percent of home to work/university trips, including 68.7 percent in single occupancy trips, 9.7 percent in two-person carpools, 7.8 percent in three-person carpools, and 5.7 percent in auto passenger trips. When accounting for all daily trips, on average vehicular trips account for approximately 88 percent of all daily trips, including 36.8 percent in single occupancy trips, 12.8 percent in two-person carpools, 9.5 percent in three-person carpools, and 28.5 percent in auto passenger trips. Only 3.2 percent of work trips and 2.4 percent of all trips are made via transit/rail in the region (SCAG 2023b). Of these, the greatest number of travelers is carried by buses, with lesser patronage on Metro Rail, paratransit, commuter rail, and other forms of public transit services. Trips made via public transit account for 3.2 percent of all home-to-work trips in the region and 2.4 percent of all daily trips (Table 3.17-4). Non-motorized trips account for 4.8 percent of all home-to-work trips in the region and 9.9 percent of all daily trips (Table 3.17-4).

In its 2022 Progress Report, California’s Sustainable Communities and Climate Protection Act, the California Air Resources Board (CARB) indicates that VMT and VMT per capita across the State, including in the SCAG region, continues to grow although not as fast as identified in the 2018 Progress Report (CARB 2022). The 2022 Progress Report shows that per capita VMT, while dipping to as low as 10 percent below 2005 levels between 2006 and 2012 (likely reflecting the recession) had grown to over 4 percent above 2005 levels by 2019. More specifically, as noted in the 2022 Progress Report, the latest Scoping Plan scenario modeling shows that in 2019, Californians drove an average of 24.6 miles daily; and that this figure needs to be cut to no more than 18.4 miles by 2030 and to 17.2 miles by 2045 to achieve California’s climate goals. In 2019, the four largest MPO regions, including the

SCAG region, together account for 81 percent of the statewide light-duty VMT and 82 percent of population. While the passenger vehicle and light-duty trucks per capita VMT and the associated GHG emissions relative to 2005 in the State continued to rise, the 2022 Progress Report showed that the regional passenger vehicle and light-duty trucks per capita VMT and GHG emissions in the SCAG region were both trending in the right directions (decreasing trends) (see Section 3.8, *Greenhouse Gas Emissions*).

TABLE 3.17-4 Existing (2019) Travel Mode Split (Percentage of County Total)

COUNTY	PERSON TRIP TYPE	DRIVE ALONE	2-PERSON CARPOOL	3-PERSON CARPOOL	AUTO PASSENGER TRIP	TRANSIT	NON-MOTORIZED	TOTAL
Imperial	Home Based Work	61.8%	10.9%	10.7%	4.8%	0.1%	11.7%	100.0%
	All Daily Trips	30.4%	13.1%	10.2%	27.9%	1.1%	17.3%	100.0%
Los Angeles	Home Based Work	65.9%	9.7%	7.5%	6.2%	5.3%	5.4%	100.0%
	All Daily Trips	36.1%	12.8%	9.3%	27.8%	3.5%	10.5%	100.0%
Orange	Home Based Work	72.9%	9.4%	7.7%	5.3%	0.7%	4.0%	100.0%
	All Daily Trips	39.5%	12.6%	9.3%	28.3%	1.2%	9.1%	100.0%
Riverside	Home Based Work	72.5%	10.2%	8.6%	4.8%	0.4%	3.5%	100.0%
	All Daily Trips	35.5%	12.9%	10.3%	31.3%	1.3%	8.7%	100.0%
San Bernardino	Home Based Work	71.8%	10.5%	8.8%	5.0%	0.6%	3.3%	100.0%
	All Daily Trips	37.3%	13.5%	10.1%	28.9%	1.4%	8.8%	100.0%
Ventura	Home Based Work	71.8%	8.8%	7.2%	4.5%	0.6%	7.1%	100.0%
	All Daily Trips	37.2%	12.3%	9.4%	28.4%	1.1%	11.6%	100.0%
Total	Home Based Work	68.7%	9.7%	7.8%	5.7%	3.2%	4.8%	100.0%
	All Daily Trips	36.8%	12.8%	9.5%	28.5%	2.4%	9.9%	100.0%

Source: SCAG Modeling (2023)

Table Note: Numbers in each column may not add up precisely due to rounding.

REGIONAL FREEWAY, HIGHWAY, AND ARTERIAL SYSTEM

The regional freeway, highway, and arterial system is the primary means of person and freight movement for the region (**Table 3.17-5, Existing Regional Freeway Route Miles and Lane Miles by County [2019]**). This system provides for direct auto, bus and truck access to employment, services and goods. The network of freeways, interstates, and highways serves as the backbone of the system, offering high-capacity, limited-access travel and serves as the primary heavy-duty truck route system. Deferred maintenance on roadways within the SCAG region has contributed significantly to the poor condition of many roadways and many need costly repairs to improve security and efficiency. The Plan will focus on preserving the existing transportation network, including preservation of roads, highways, bridges, railways, bicycle and pedestrian facilities, and transit infrastructure, with the intent of maintaining mobility in a cost-efficiency manner without increasing capacity.

TABLE 3.17-5 Existing Regional Freeway Route Miles and Lane Miles by County (2019)

COUNTY	FREEWAY ROUTE MILES	FREEWAY LANE MILES
Imperial	95	379
Los Angeles	657	4,683
Orange	227	1,658
Riverside	321	1,834
San Bernardino	471	2,558
Ventura	94	538
Total	1,865	11,651

Source: SCAG Modeling (2023)

Table Note: Freeway Lane Miles by County are inclusive of Toll and High-Occupancy Toll (HOT) Lane Miles

ARTERIAL STREET SYSTEM

The local street system provides access for local businesses and residents. Principal arterials account for about 44 percent of the arterial (principal and minor) network (**Table 3.17-6, Existing Regional Arterial Lane Miles by County [2019]**) and carry a high percentage of total traffic. In many cases arterials serve as alternate parallel routes to congested freeway corridors. Peak period congestion on the arterial street system occurs generally in the vicinity of activity centers, at bottleneck intersections and near many freeway interchanges.

TABLE 3.17-6 Existing Regional Arterial Lane Miles by County (2019)

COUNTY	ARTERIALS	LANE MILES
Imperial	Principal	364
	Minor	517
Los Angeles	Principal	8,383
	Minor	8,931
Orange	Principal	3,582
	Minor	2,777
Riverside	Principal	1,032
	Minor	3,088
San Bernardino	Principal	1,725
	Minor	3,892
Ventura	Principal	811
	Minor	992
SCAG Total	Principal	15,898
	Minor	20,196

Source: SCAG Modeling (2023)

REGIONAL TOLL, HIGH-OCCUPANCY TOLL (HOT), AND HIGH-OCCUPANCY VEHICLE (HOV) SYSTEM AND PARK AND RIDE SYSTEM

The regional toll, HOT, and HOV system consists of exclusive lanes on freeways and arterials, as well as busways and exclusive rights-of-way dedicated to the use of toll-paying vehicles, high-occupancy toll (HOT) vehicles, and high-occupancy vehicles (HOVs). As described in **Table 3.17-7, Existing Regional Toll, High-Occupancy Toll, and High-Occupancy Vehicle Lane Miles by County (2019)**, the toll, HOT, and HOV system includes lanes on freeways, ramps and freeway-to-freeway connectors. The regional toll, HOT, and HOV system is designed to maximize the person-carrying capacity of the freeway system through the charging of tolls for selective highway segments and encouragement of shared-ride travel modes. HOT and HOV lanes operate at a minimum occupancy threshold of either two or three persons, with and without tolls, respectively. Many include on-line and off-line park and ride facilities, and several HOV lanes are full “transitways” including on-line and off-line stations for buses to board passengers.

TABLE 3.17-7 Existing Regional Toll, High-Occupancy Toll, and High-Occupancy Vehicle Lane Miles by County (2019)

COUNTY	TOLL LANE MILES	HOT LANE MILES	HOV LANE MILES
Imperial	-	-	0
Los Angeles	-	84	474
Orange	295	42	252
Riverside	-	35	80
San Bernardino	-	-	113
Ventura	-	-	8
Total	295	161	927

Source: SCAG Modeling (2023).

Park and ride facilities are generally located at the urban fringe along heavily traveled freeway and transit corridors and support shared-ride trips, either by transit or by carpool or vanpool. Most rail transit stations have park and ride lots nearby. Park and ride lots in the SCAG region include: 161 in Los Angeles County, 31 in Orange County, 33 in Riverside County, 27 in San Bernardino County, and 22 in Ventura County (SoCal511 2023).

PUBLIC TRANSIT

In Southern California public transit service is comprised of local and express buses, transitways, Rapid Bus, bus rapid transit (BRT), urban rail, including subway and light rail principally centered in the core of Los Angeles County, commuter rail that spans five counties and shuttles/circulators that feed all transportation modes and activity centers. See **Table 3.17-8, SCAG Region Annual Fixed Route Transit Ridership (2005-2019)** for an annual breakdown of transit ridership in the SCAG region. Transit service is provided by approximately 67 separate public agencies. Twelve of these agencies provide 91 percent of the existing public bus transit service. Local service is supplemented by municipal lines and shuttle services while additional regional service is offered via private bus companies.

TABLE 3.17-8 SCAG Region Annual Fixed Route Transit Ridership (2005–2019)

	2005	2008	2010	2012	2015	2016	2018	2019
Total Trips								
Metro Rail	74,242,912	86,707,131	95,596,698	101,516,533	106,974,667	108,089,770	110,139,493	102,729,642
Commuter Rail	10,693,327	12,680,973	7,398,000	13,155,790	10,693,000	13,758,419	14,190,870	12,824,059
Bus	611,308,450	627,639,691	548,728,000	587,830,836	609,795,000	525,376,865	622,286,000	504,872,015
Total	696,244,689	727,027,795	617,928,000	702,503,159	694,731,000	647,225,054	721,674,000	620,455,716
Passenger Miles								
Metro Rail	442,916,123	524,813,417	564,179,659	597,916,365	634,484,952	651,537,856	705,117,231	670,421,169
Commuter Rail	359,938,222	436,565,493	274,625,402	433,650,956	359,938,222	425,150,283	438,553,704	416,394,626
Bus	2,375,502,229	2,461,654,000	2,206,840,397	2,487,359,821	2,375,502,229	2,206,425,695	2,461,654,000	2,953,664,315
Total	3,178,356,574	3,423,032,910	3,045,645,458	3,518,927,142	3,369,925,403	3,283,113,834	3,463,369,151	4,040,480,110

Sources: National Transit Database 2019, 2021; SCAG Modeling (2023)

Many people depend on reliable transit service to participate in the economic, cultural, and social benefits of Southern California, and transit use is growing in the SCAG region (**Table 3.17-9, Statistics for Major Transit Operators for 2019**). According to data reported to the National Transit Database (NTD), transit agencies in the SCAG region experienced approximately 621 million annual boardings and invested \$3.4 billion in operations and maintenance (O&M) in 2019. These services were operated by over 100 agencies, involving a wide variety of bus and rail transit modes.

TABLE 3.17-9 Statistics for Major Transit Operators for 2019

COUNTY	LARGEST TRANSIT OPERATOR	AVERAGE WEEKDAY BOARDINGS	ANNUAL BOARDINGS	ANNUAL VEHICLE REVENUE MILES (VRM)	PASSENGER FARES AS A % OF OPERATION EXPENSES*
Fixed Bus Route Service					
Imperial	ICTC	2,795	783,339	1,269,986	13.2
Los Angeles	Metro	878,862	277,308,845	73,091,103	14.8
Orange	OCTA	131,720	40,743,654	40,333,507	18.9
Riverside	RTA	28,853	8,697,652	13,376,950	13.1
San Bernardino	Omnitrans	35,583	10,863,530	11,425,096	13.9
Ventura	Gold Coast Transit	11,456	3,642,130	2,940,270	13.1
Metro Rail					
Los Angeles	Metro	295,889	93,171,898	24,631,442	12.1
Regional Commuter Rail					
Various	SCRRA (Metrolink)	45,786	12,824,059	13,582,288	33.8

Sources: National Transit Database 2021; Metro 2019.

Although transit/rail ridership has improved over the past several years, it is still significantly less than it was prior to the COVID-19 pandemic and its past ridership peak around 2007 before the Great Recession (SCAG 2023b). Prior to the pandemic, there over 600 million annual transit/rail boardings (see Table 3.17-8). Overall, the region’s bus ridership levels are currently 23 percent below what they were pre-pandemic. For Los Angeles Metro, bus ridership has recovered more than rail ridership. For example, when comparing December 2019 to December 2022, bus ridership was down 21 percent and rail ridership was down 43 percent. The issue with rail ridership recovery extends to Metrolink whose ridership is currently 61 percent lower than it was pre-pandemic. Pre-pandemic, Metrolink was carrying about 45,000 boardings per day. It is now carrying about 19,000 boardings per day. Prior to the pandemic, the Pacific Surfliner’s ridership had grown steadily over the years to nearly 3 million annual passengers. Ridership is slowly coming back and was about half that figure for Fiscal Year 2021-22. Though some transit/rail operators are optimistic that higher gas prices and worsening traffic congestion may motivate ridership, driver shortages present an immediate challenge, and many remain uncertain of what the longer-term future normal may look like, particularly if remote working remains a norm for discretionary riders who tend to take rail.

METRO RAIL SYSTEM

Existing urban rail lines (Metro Rail) are located in Los Angeles County and are operated by Metro. They include five light rail lines and two subway lines. The Metro A Line from Long Beach to Downtown Los Angeles, the Metro C Line from Redondo Beach to Norwalk, the Metro E Line from Downtown Los Angeles to Santa Monica, the Metro

K Line from West Adams to Westchester, and the Metro B Line subway from Union Station to North Hollywood. The Metro D Line subway follows the B Line from Union Station to Wilshire and Vermont but branches off to Western Avenue, and the Metro L Line that runs from East Los Angeles (Atlantic station) to Azusa via Union Station (shown in Map 2-3, Existing Transit Network [2019], in Chapter 2, *Project Description*, of this 2024 PEIR). The Metro Rail system is operated seven days a week. A system total of 203.8 route miles serves a total of 100 stations (Metro 2023). In 2019, ridership on the Metro Rail system was approximately 296,000 boardings every weekday in 2019 (Metro 2019).

COMMUTER RAIL AND INTERCITY PASSENGER RAIL

Commuter rail service is operated by the Southern California Regional Rail Authority (SCRRA). In October of 1992, the SCRRA began initial operation of the Metrolink commuter rail system on three lines. Service on the initial system was greatly expanded after the 1994 Northridge earthquake. Currently SCRRA operates seven routes including five from Downtown Los Angeles to Ventura, Lancaster, San Bernardino, Riverside, and Oceanside, from San Bernardino to Oceanside, and from Riverside via Fullerton or City of Industry to Downtown Los Angeles. In 2019, the system operated 195 trains on weekdays, 48 on Saturdays, and 44 on Sundays to 62 stations on 826.8 route miles. Average 2019 weekday ridership was 45,786 passengers (SCRRA 2019).

Amtrak provides significant regional and interregional service on the 351-mile Los Angeles–San Diego–San Luis Obispo (LOSSAN) Corridor (also known as Amtrak’s Pacific Surfliner corridor) operating 13 daily round-trip services between San Diego and Los Angeles, and five between Santa Barbara and San Diego (**Map 3.17-1, Amtrak Railways**). In Spring 2023, due in part to unusually high rainfall since late 2022, a portion of the railroad tracks located along the Pacific coast in the City of San Clemente that serve Amtrak and Metrolink trains was obstructed by landslide debris forcing the closure of this segment of track for rail service. To maintain service between San Juan Capistrano and Oceanside, both Metrolink and Amtrak offered connecting bus service in lieu of passenger train service along the affected segment. As of July 2023, train service has been restored along the affected track segment (SCRRA 2023). Note that a good portion of the region’s rail system, especially the LOSSAN Corridor, runs along the coast on sandstone bluffs that could be significantly affected by erosion from heavy rains as well as sea level rise. Additionally, Amtrak operates four interstate routes within the region (Coast Starlight, Sunset Limited, Southwest Chief and Texas Eagle) that on average have one daily trip (Amtrak 2023).

SHUTTLES AND DEMAND-RESPONSIVE SERVICES

One component of the region’s public transit system consists of publicly operated or funded demand-response taxis and dial-a-ride services; some open to the general public, others limited to elderly and disabled use. It also includes locally operated or funded shuttle buses (e.g., Los Angeles DASH, Pasadena ARTS, Glendale Beeline, Cerritos on Wheels, El Monte Transit, Riverside Orange Blossom, etc.). Access Paratransit, the largest provider of transportation services for the disabled in the region, operates in the vicinity of fixed-route bus and rail lines in Los Angeles County and extends into portions of the surrounding counties of San Bernardino, Orange and Ventura. These systems serve as local shuttles, internal circulators, connectors to other public transit, or as shoppers’ shuttles. Service on these systems is usually limited to a prescribed geographic area (Access Services 2023).

AUTONOMOUS VEHICLE PASSENGER SERVICE PROGRAMS

On August 10, 2023, the California Public Utilities Commission (CPUC) approved Resolutions granting additional operating authority for Cruise LLC and Waymo LLC to conduct commercial passenger service using driverless vehicles in San Francisco (CPUC 2023a). The approval includes the ability for both companies to charge fares for

rides at any time of day. The requirements for the Resolutions were established in a CPUC Decision adopted in 2020 (see discussion in Regulatory Framework below). This Decision mandates that autonomous vehicle (AV) companies submit an Advice Letter to enter the market as a passenger carrier using driverless vehicles or to make significant alterations to their current driverless passenger service, particularly those affecting passenger safety measures. The CPUC evaluated the Cruise and Waymo Advice Letters to ensure they met the licensing requirements set forth in the Decision, including passenger safety measures. Prior to the August 2023 approval, both companies operated in San Francisco and other areas with specified limitations:

- Cruise was authorized to offer fared passenger service in limited areas of San Francisco from 10 p.m. to 6 a.m. without a safety driver present, fared passenger service throughout San Francisco at any time with a safety driver present, and non-fared passenger service throughout San Francisco at any time without a safety driver present.
- Waymo was authorized to offer fared passenger service throughout San Francisco at any time with a safety driver present and non-fared passenger service throughout San Francisco at any time without a safety driver present. Waymo is also authorized to offer non-fared passenger service in parts of Los Angeles and in and around Mountain View with or without a safety driver present.

Additionally, both Cruise and Waymo were issued an Autonomous Vehicle Deployment Program Permit from the California Department of Motor Vehicles (DMV). This DMV permit is a prerequisite for AV deployment and is distinct from the CPUC's permit, which is an additional requirement for companies that provide transportation services to the public using AVs. However, on October 24, 2023 the DMV notified Cruise that it is suspending Cruise's autonomous vehicle deployment and driverless testing permits, effective immediately. The DMV provided Cruise with the steps needed to apply to reinstate its suspended permits, which the DMV will not approve until the company has fulfilled the requirements to the DMV's satisfaction. This decision does not impact the company's permit for testing with a safety driver and does not affect Waymo's permit to operate its program (DMV 2023). Participants in the CPUC's AV programs must also maintain the relevant DMV AV permit in good standing. Applicants to the Driverless Pilot Program and the Driverless Phase I Deployment Program are required to submit Passenger Safety Plans that outline their plans to protect passenger safety.

While this emerging technology does not currently represent an established transportation option in the SCAG region, further development and implementation of this technology could affect future mobility trends, particularly in urban areas, as additional programs become available.

ACTIVE TRANSPORTATION AND NON-MOTORIZED TRANSPORT

The California Active Transportation Program (ATP) was created to ensure all active modes of transportation, such as biking and walking, was accounted to meet the development of active transportation plans in disadvantaged communities as well as the implementation of non-infrastructure projects (i.e., education, enforcement activities). The use of bicycle as a means of transportation has several appealing aspects for an increasing share of travelers.

BICYCLE AND PEDESTRIAN FACILITIES

Biking and walking primarily constitute non-motorized transportation. Non-motorized transportation plays a bigger role in the densely-populated, mixed-land-use areas of the region. Bicycling has positive air quality, economic, and health impacts, and can reduce automobile-related congestion and energy use. Similar to bicycle use, walking can also reduce auto emissions of both criteria pollutants and greenhouse gases from auto trips. Health in communities improve when there are options to increase physical outcome of activities, lower body

weight, lower rates of traffic injuries, lower air pollution, and improve mobility for nondrivers. Currently, 66.4 percent of all walking trips are less than half a mile, and 89.3 percent of walking trips are less than a mile. The average bicycle trip is 2.1 miles (the majority of bicycle trips are discretionary). Walking trips made up two percent of all commute trips and 11.7 percent of all trips for the SCAG region. Bicycles make up 0.8 percent of all trips and half a percent of commute trips for the SCAG region (SCAG 2023).

The region's bikeways encourage non-motorized travel, serve as recreational facilities, and provide inexpensive, environmentally friendly transportation opportunities. Some of the strategies to encourage active transportation currently being considered are focused on addressing concerns related to equity and public health, refining models to account for recent changes in shared mobility, improving first-last mile infrastructure, and improving compact community development through targeted Priority Development Areas (PDAs). The bikeways are also designated to provide for allowable use and to encourage active use. Class I bikeways are separate shared-use paths also used by pedestrians, Class II bikeways are striped lanes in streets, and Class III bikeways are signed routes. There are approximately 9,000 bikeway miles in the region, with the majority in Los Angeles County, followed by Riverside and Orange County. Bike rack, locker, and station programs are ongoing in a number of cities and transit operators. In addition, transit operators are integrating bicycle transportation with transit via bus bike racks, bike-on-train programs and bicycle lockers at transit centers. **Map 3.17-2, Existing (2019) and Proposed Regional Bikeways (2050)**, shows the existing bikeways in the SCAG region.

Pedestrian access at and near public transit, in most major commercial areas, and many residential areas is facilitated by sidewalks, a number of pedestrian malls, and in some cases local jogging and pedestrian trails or paths.

MICRO-TRANSIT

Micro-transit is more flexible than traditional bus service in that it either utilizes dynamic routing, smaller vehicles or on-demand service that allows greater efficiency and convenience. Some micro-transit services exist in Southern California, but it can and must expand to meet riders' shifting needs and expectations. While accommodations should be made for those who do not possess smartphones or other technology to hail a ride or research a route, most transit riders could benefit from micro-transit.

Los Angeles Metro and Orange County Transportation Authority have partnered with private companies to pilot micro-transit services in their respective counties. These are projects that could change the way people ride transit, giving riders more options.

MICRO-MOBILITY

Micro-mobility strategies provide shared technology infrastructure and regulation frameworks to ensure that new technologies (e.g., app-based e-scooters and e-bikes) 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 cities will likely be tasked with the regulation of these devices and will likely need to manage the locations where parking is allowed and where they can be ridden.

GOODS MOVEMENT

Goods movement generally refers to the movement of raw, semi-finished, and finished materials and products used by businesses and residents across the transportation system. These goods move in myriad ways and through complex systems, often using multiple modes of transportation (e.g., ships, trucks, trains, planes, etc.). Products can be produced within the U.S. or another country, and make their way to a business, retail store, or directly to consumers versus traditional purchases by consumers at physical retail outlets. The efficient movement of these goods are critical to maintain a strong economy and ensure improvements in the quality of life of regional residents.

Goods movement supports industries and activities that provide jobs, tax revenue, and resources that bolster innovation, creativity, and access to local and world markets through trade. This movement depends directly on the infrastructure that comprises the transportation network such as highways, rail lines, ports, and networks of warehousing and other distribution facilities. Maintaining and improving existing infrastructure, and expanding infrastructure capacity where appropriate, is key to ensuring the competitiveness of a growing economy. However, goods movement also has negative impacts and externalities. Growing trade and increased volumes of goods moving across the transportation system have contributed to greater congestion, safety concerns, harmful emissions of dangerous pollutants, wear-and-tear on roadways and impacts on local neighborhoods. As the Metropolitan Planning Organization (MPO) for the region, SCAG has adopted a vision for the region's goods movement system.

Federal law (23 U.S.C. Sections 134–135) mandates that MPOs encourage and promote the safe and efficient management, operation, and development of surface transportation systems that will serve the mobility needs of people and freight and foster economic growth and development within and between States and urbanized areas. Specifically, MPOs should consider projects and strategies that will increase the accessibility and mobility of people and for freight and enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

At the state level, MPOS are required to perform regional transportation planning to prepare and provide for the region's mobility in a fiscally and environmentally responsible manner, consistent with the needs, preferences, and sensibilities of the community. This is consistent with California Government Code 65041.1 which identifies state planning priorities, which are intended to promote equity, strengthen the economy, protect the environment, and promote public health and safety in the state, including in urban, suburban, and rural communities.

Wholesale and retail trade, transportation, and manufacturing support over approximately 6 million jobs in the SCAG region according to statistics provided by the State's Employment Development Department (CA EDD 2023).

HEAVY-DUTY TRUCKS

Map 2-5, Existing Regional Goods Movement System, in Chapter 2, *Project Description*, displays the regional goods movement system. One of the key components of the region's goods movement system is the fleet of heavy-duty trucks, defined as cargo-carrying vehicles with a gross weight rating in excess of 8,500 pounds. Trucks provide a vital link in the distribution of all types of goods between the region's ports (sea and air), railroads, warehouses, factories, farms, construction sites and stores. The size and weight of heavy-duty trucks gives them unique operating characteristics; that is, they accelerate and decelerate more slowly than lighter vehicles and require more road space to maneuver. Dedicated truck lanes currently exist at two major freeway interchanges: the junction of

Interstate 5 (I-5) with the I-210 and State Route 14 (SR-14) and at the junction of the I-405 with the I-110. In addition, truck climbing lanes are located on northbound I-5 in northern Los Angeles County.

The trucking industry, including common carrier, private carrier, contract carrier, drayage and owner-operator services, handles both line-haul and pick-up and delivery. The industry uses the public highway system for over-the-road and local service. However, it is also served by a considerable infrastructure of its own. This infrastructure includes truck terminals, warehousing, consolidation and trans-loading facilities, freight forwarders, truck stops and maintenance facilities. These various facilities are especially prevalent in the South Bay and Gateway Cities areas, including Wilmington and Carson and extending generally between Los Angeles International Airport (LAX) and the San Pedro Bay Ports, along the I-710 Corridor north to Vernon, Commerce, and Downtown Los Angeles, east through the San Gabriel Valley to Industry, Pomona, and Ontario and then to the Inland Empire in Fontana and Rialto as well as in Glendale and Burbank. Specialized facilities for trucking that provide air cargo ground transport are located around regional airport facilities, notably LAX and LA/Ontario International Airport.

RAILROADS

The SCAG region is served by two main line commercial freight railroads—the Burlington Northern/Santa Fe Railway Co. (BNSF) and the Union Pacific Railroad (UP). These railroads link Southern California with other United States regions, Mexico, and Canada either directly or via their connections with other railroads. They also provide freight rail service within California. In 2017, approximately 162.3 million tons of cargo either originated or terminated on railroads throughout California; in 2021 (a year potentially still experiencing pandemic affects) 164.6 million tons of cargo was moved by rail (Association of American Railroads 2021).

The SCAG region is also served by three short line or switching railroads:

- The Pacific Harbor Line (formerly the Harbor Belt Railroad), which handles all rail coordination involving the Ports of Los Angeles and Long Beach, including dispatching and local switching in the harbor area;
- Los Angeles Junction Railway Company, owned by BNSF, which provides switching service in the Vernon area for both the BNSF and UP;
- The Ventura County Railroad, owned by Rail America, Inc., which serves the Port of Hueneme and connects with the UP in Oxnard.

These railroads perform specific local functions and serve as feeder lines to the trunk line railroads for moving goods to and from Southern California.

The two main line railroads also maintain and serve major facilities in the SCAG region. Intermodal facilities in Commerce (BNSF-Hobart), East Los Angeles (UP), San Bernardino (BNSF), and Carson near the San Pedro Bay Ports (UP-ICTF), the Los Angeles Transportation Center (UP-LATC), and the UP-City of Industry yards serve on-dock rail capacity at the Ports of Los Angeles (UP/BNSF) and Long Beach (UP/BNSF).

All major rail freight corridors in the region have some degree of grade separation, but most still have a substantial number of at-grade crossings on major streets with high volumes of vehicular traffic. These crossings cause both safety and reliability problems for the railroads and for those in motor vehicles at the affected crossings. Trespassing on railroad rights of way by pedestrians is another safety issue affecting both freight and commuter railroads.

REGIONAL AVIATION SYSTEM

The SCAG region supports the nation's largest regional airport system in terms of number of airports and aircraft operations, operating in a very complex airspace environment. The SCAG region contains eight commercial airports with scheduled passenger service, seven government/military airfields, and over 30 reliever and general aviation airports. The existing active commercial service airports handle the majority of passenger air traffic (see Map 2-6, Airports in the SCAG Region, in Chapter 2, *Project Description*):

- Los Angeles International Airport (LAX)
- Ontario International Airport (ONT)
- John Wayne/Orange County Airport (SNA)
- Hollywood Burbank Airport (BUR)
- Imperial County Airport (limited commercial service) (IPL)
- Long Beach Airport (LGB)
- Palm Springs International Airport (PSP)
- San Bernardino International (SBD)

Airport passenger, cargo, and operations data including forecasts are developed and provided by the airports. In all, approximately 116.5 million annual passengers (MAP) were served in the region in 2019, an overall 32-percent increase since 2000. The level of regional aviation demand forecasts related to MAP has generally been decreasing, with approximately 165.3 MAP by 2035 in the 2008 RTP, 145.9 MAP by 2035 in the 2012 RTP/SCS, 136.2 MAP by 2040 in the 2016 RTP/SCS, and 197.1 MAP by 2045 in the 2020 RTP/SCS (SCAG 2020, 2023a). In 2021, Los Angeles International Airport (LAX) led the largest share of air passengers with approximately 70 percent, followed by John Wayne Airport at 11 percent, Hollywood Burbank Airport at 6 percent, and Ontario International Airport at 7 percent (SCAG 2023a). The SCAG region is forecast to have 182.4 MAP by 2050, according to the passenger forecasts provided to SCAG by the airports. In 2019, the SCAG region was one of the most active and fastest growing regions for air passenger traffic in the United States, second only to the New York/New Jersey region for air passenger traffic. Moreover, the growth rate of 4.65 percent for the SCAG region from 2014 to 2019 was second only to the Bay Area. LAX accounts for the largest proportion of passenger volume, cargo, and annual operations. A brief discussion of the location, major access routes, and facilities at eight major airports is provided below.

HOLLYWOOD BURBANK/BOB HOPE AIRPORT (BUR)

Located in the San Fernando Valley northwest of downtown Burbank, the Hollywood Burbank Airport (also known as Bob Hope Airport) is a publicly owned airport operated by the Burbank-Glendale-Pasadena Airport Authority. Major vehicular access is provided by I-5, Hollywood Way, San Fernando Road, and Vanowen Street. Burbank Airport is currently in the project planning process for a new, relocated terminal, which would enable faster processing while maintaining existing capacity. Burbank Airport has dedicated transit and rail facilities for passengers coming to and from the airport and is the only airport in the SCAG region with a direct rail connection to Downtown Los Angeles via Amtrak and Metrolink. Burbank Airport served 5.9 MAP in 2019, a 53-percent increase over 2015 (SCAG 2023). In 2022 (a year potentially still experiencing pandemic effects), Burbank Airport averaged 386 aircraft operations per day, including 42 percent commercial and 20 percent transient general aviation.

IMPERIAL COUNTY AIRPORT (IPL)

Imperial County Airport is located in the City of Imperial, approximately 12 miles north of the California-Mexico border. The airport provides limited scheduled air service and serves the general aviation needs of the surrounding communities. It is part of the Essential Air Service (EAS) program through the US Department of Transportation, providing residents of Imperial County a connection to the national aviation system by subsidizing air service to

eligible small community airports. Only one scheduled passenger airline operates out of IPL, carrying passengers to LAX or BUR. IPL averages 39 aircraft operations per day, including 57 percent military and 17 percent general aviation. IPL served 10,756 passengers in 2019, down from a peak of approximately 30,000 passengers in 2001.

LONG BEACH AIRPORT/DAUGHERTY FIELD (LGB)

Long Beach Airport is located approximately four miles northeast of downtown Long Beach. Built in 1941, the Long Beach Airport terminal is a Cultural Historic Landmark. In 2017, a new concourse was opened, and a new ground transportation center is currently being constructed. The arrival of low-cost carrier JetBlue in 2001 led to a rapid increase in air traffic and solidified the airport as an alternative to LAX for east coast destinations. The airport primarily serves general aviation aircraft. Passenger activity at LGB was at approximately 3 million annual passengers (MAP) per year from 2010 until 2019. In 2018, passenger traffic hit 3.9 MAP. Although passenger activity dipped to 1.04 MAP in 2020 due to the COVID-19 pandemic, as of 2022, LGB passenger activity was back to 3.24 MAP. As for cargo, from 2010 to 2019, LGB averaged approximately 24,000 tons of air cargo movement a year. However, in the early 2000s, from 2000 to 2005, LGB averaged approximately 55,000 tons of cargo per year. Finally, the COVID-19 pandemic impacted LGB cargo, with air cargo activity going down to 15,712 tons in 2020 and remaining at 14,384 tons as of 2022.

LOS ANGELES INTERNATIONAL AIRPORT (LAX)

Located 18 miles southwest of Downtown Los Angeles, LAX is the publicly owned primary airport serving the Greater Los Angeles Area. As the largest airport in the region and the fourth busiest in the world for passenger traffic, LAX plays a critical role in the movement of people and cargo throughout the region. When factoring out connecting flights, LAX is the busiest origin and destination airport in the world for passenger traffic. LAX is also the 13th busiest cargo airport in the world by tonnage. LAX is currently undergoing a major renovation known as the Landside Access Modernization Program, which will include an elevated Automated People Mover; two Intermodal Transportation Facilities with drop-off areas; a Consolidated Rental Car Facility; and a comprehensive series of roadway improvements. In addition, Metro's Crenshaw/LAX Line is set to reach the LAX/Metro Transit Center in 2024, providing a light rail connection from the Automated People Mover to destinations throughout South Los Angeles, ultimately connecting to the Expo and Green Lines. LAX averages 1,548 aircraft operations per day, including 92 percent commercial aviation. Passenger traffic at LAX has steadily increased since the 2008 Recession, from 59 MAP in 2010 to 88.1 MAP in 2019; in 2022, passenger traffic at LAX was at 65.9 MAP, reflecting the lingering effects of the COVID-19 pandemic on air travel. LAX accommodates approximately 69 percent of the air passenger travel in the SCAG region.

ONTARIO INTERNATIONAL AIRPORT (ONT)

Ontario International Airport is located in the city of Ontario in San Bernardino County. It is accessed primarily via I-10 and SR-60. Southwest Airlines is the largest carrier operating at the airport, and ONT is also a major cargo hub for UPS, due to its long runways and relatively limited noise restrictions. In recent years, passenger traffic at ONT reached as high as 5.6 MAP in 2019 just prior to the COVID-19 pandemic. Despite falling to 2.5 MAP in 2020, ONT has rebounded to 5.7 MAP in 2022, which is well below the 2007 peak of 7.2 MAP. As of 2022, Ontario Airport averages 282 aircraft operations per day, including 71 percent commercial and 12 percent air taxi.

PALM SPRINGS INTERNATIONAL AIRPORT (PSP)

Palm Springs International Airport is located in the desert resort city of Palm Springs in the Coachella Valley of Riverside County. The airport primarily caters to seasonal leisure travelers visiting during the winter. PSP averages 169 aircraft operations per day, including 48 percent commercial and 28 percent transient general aviation. Despite a significant decrease of 54 percent from 2.7 MAP in 2019 to 1.25 MAP in 2020 due to the COVID-19 pandemic, PSP recovered quickly. In 2021, PSP accommodated 2.1 MAP, which was a 68 percent increase from the previous year. As of 2022, PSP was at 2.98 MAP, the highest passenger demand for PSP in the 21st century.

JOHN WAYNE AIRPORT (SNA)

John Wayne Airport is owned and operated by the County of Orange and is not located in an incorporated city. However, it is surrounded by the cities of Santa Ana, Irvine, Newport Beach, and Costa Mesa and accessible by the I-405 and SR-73 freeways. SNA is 503 acres with 20 gates for commercial airlines and two commuter terminals, and general aviation outnumbers commercial operations. Strict noise regulations impact when flights can fly in and out of John Wayne Airport. Commercial departures between 10 PM and 7 AM (8 AM on Sundays) and arrivals between 11:00 PM and 7 AM (8 AM on Sundays) are prohibited. Additionally, special takeoff procedures for most aircraft require a steep climb followed by an abrupt power reduction at approximately 500 feet for quiet passage over Newport Beach. From 2010 to 2019, it averaged 9.7 MAP per year. Furthermore, passenger traffic at the airport has been more resilient to exogenous shocks than the other airports in the area. Air travel demand at SNA recovered relatively quickly after 9/11 and the Great Recession. Although passenger demand decreased 64 percent from 10.66 MAP in 2019 to 3.8 MAP in 2020, as of 2022, SNA was at 11.4 MAP. SNA in 2022 averages 834 operations per day, including 33 percent commercial, 32 percent local general aviation, and 26 percent transient general aviation.

SAN BERNARDINO INTERNATIONAL AIRPORT (SBD)

Formerly known as the Norton Air Force Base, San Bernardino International Airport (SBD) is located two miles southeast of downtown San Bernardino and six miles northwest of downtown Redlands in San Bernardino, California. Norton Air Force Base closed in 1989. SBD has two passenger terminals: one terminal is for domestic travel and the other is for international travel. In August 2022, Breeze Airways became the first commercial airline to operate scheduled passenger flights out of SBD. Currently, there are no flights out of the SBD international terminal. And SBD has an average of 134 aircraft operations per day. Although SBD only moved approximately 3,466 air passengers in 2019, that number is anticipated to increase significantly with the recently added scheduled commercial passenger flights by Breeze Airways (1.81 MAP is forecast in 2050). In addition to the domestic and international terminals, which can accommodate scheduled commercial passenger services, SBD also has the fixed-base operator Luxivair executive terminal for corporate and general aviation customers. It should be noted that since SBD only began offering commercial passenger service in late 2022 and current operations are relatively limited, this airport is considered to have a minimal effect on the regional transit system under existing conditions.

MARITIME PORTS

Southern California is served by three major deep-water seaports. These ports—Hueneme, Long Beach, and Los Angeles—handle Asia–North America trade and are served by the two major railroads and numerous trucking companies in Southern California. The Port of Hueneme, with its recent expansion, ranks as one of the premier automobile and agricultural product-handling facilities in California. The Ports of Long Beach and Los Angeles are full-service ports with facilities for containers, autos and various bulk cargoes. With an extensive landside

transportation network, the three ports moved approximately 350 million metric tons of cargo in 2019 (Port of Los Angeles 2020, Port of Long Beach 2023, Port of Hueneme 2019).

In particular, the San Pedro Bay Ports (Long Beach and Los Angeles) dominate the container trade in the Americas by shipping and receiving nearly 17 million 20-foot Equivalent Units (TEUs) of containers in 2019 (Port of Los Angeles 2020, Port of Long Beach 2023). Together these two ports rank third in the world, behind Rotterdam and Hong Kong, as the busiest maritime ports.

TRANSPORTATION HAZARDS

Based on average accident rates provided by Caltrans, transportation-related fatalities in 2019 occurred at an overall rate of 1.06 fatalities per 100 million vehicle miles traveled, taking into account the varying accident rates on different facility types (freeway, arterials) and travel modes (bus transit, rail transit) (California Office of Traffic Safety 2023).

SAFETY, SECURITY, AND EMERGENCY ACCESS

Southern California is home to significant natural disasters, including earthquakes, wildfires, flooding, and mudslides (discussed in Section 3.7, *Geology and Soils*, and Section 3.20, *Wildfire*). Although natural disasters, such as earthquakes and hurricanes, have produced significant regional casualties and property damage, none had the serious disruption to national travel and the national economy as the September 11, 2001, terrorist attacks. The 9/11 attacks created a new awareness of the vulnerabilities of transportation fleets and facilities. As concern about the threat of terrorism and consequences of natural disasters has grown, government (at all levels) has taken new measures to secure the welfare of its citizens. Transportation and transit agencies throughout the United States are taking increasing steps to protect their facilities against the threats of crime, terrorist activity, and natural disasters.

A large-scale evacuation would be difficult in the SCAG region. The region already has severe traffic congestion and mobility issues. The region encompasses 38,000 square miles with a diverse geography, ranging from dense urban areas to mountain ranges to vast deserts. The interdependency of the jurisdictions and organizations makes regional cooperation and coordination essential to security and emergency preparedness. Typically, no single agency is responsible for transportation security. At the local level, especially within transit agencies, safety may be handled within one office. However, it is far less likely that the security of a surface transportation mode is managed by one entity and that this entity is even controlled by the transportation organization. For example, highways and transit networks traverse multiple police jurisdictions, local fire departments generally fill the incident command role after terrorist events, regional command and control centers respond to both natural and intentional disasters, and federal agencies intervene as needed and based on specific guidelines such as the crossing of state boundaries.

The complexity of the SCAG region, with a range of potential terrorism targets, presents significant challenges in coordinating and implementing effective homeland security programs. The unexpected and complex nature of these natural and human-caused incidents require extensive coordination, collaboration and flexibility among agencies and organizations involved in planning, mitigation, response, and recovery.

As described above, the SCAG region has an extensive transportation system, with more than 73,000 lane miles of freeways, highways, and arterials and more than 9,000 miles of bikeways. As of 2019, the region had 15.9 million licensed drivers and 12.7 million registered vehicles (SCAG 2021). On average, 1,600 people are killed and 140,000

are injured (with more than 7,000 seriously injured) in traffic collisions in the region annually. Therefore, safeguarding the Southern California transportation system to minimize accidents on-road for vehicles and pedestrians is an important focus of the region.

The Transportation Research Board has classified emergency events that affect transportation agencies into several categories (**Table 3.17-10, Transportation Security Vulnerabilities**).

TABLE 3.17-10 Transportation Security Vulnerabilities

CATEGORY	NUMBER/QUANTITY WITHIN SYSTEM
Roadways and Freeway	
Freeway Lane Miles (excluding carpool)	11,195 miles
Carpool Lane Miles	927 miles
Road Lane Miles	Over 73,000 miles
Public Transit	
Buses	4,887 vehicles
Metro Rail	106 miles and 102 stations
Metrolink	538 miles and 66 stations
Aviation/Ports	
Commercial/General Aviation Airports	54
Regional Airport Activity Levels	95.2 MAP to 200 nonstop destinations
Long Beach/Los Angeles rank among world container ports	9th
Share of United States Maritime Trade	30 percent

Source: SCAG Modeling (2023); Metrolink Fact Sheet; SCAG Regional Guide 2021; Port of Los Angeles 2020.

RAIL AND MASS TRANSIT

As summarized in Table 3.17-10 the regional transit system includes the following:

- 115 miles of heavy and light rail
- 885 miles of commuter rail (including 538 miles of Metrolink rail)
- 33,485 miles of bus routes (including local bus, rapid bus, and bus rapid transit routes)
- Over 5,000 miles of bikeways
- Over 73,000 total lane miles of roadways
- 2,302 miles of express bus lanes

The dispersed nature and the daily volume of passengers using public transportation services, which include intercity passenger rail, commuter rail, subway systems, and bus transportation, make it an attractive target for terrorists and criminals. The numbers of customers using public transportation every day creates ongoing challenges for enhancing security within transit environments. Plans have been implemented to provide for basic protection. In the early 1990s, the California Public Utilities Commission required that transit agencies operating

rail systems prepare a comprehensive System Safety Program Plan (SSPP) that also included a security component. Since 2004, all transit agencies are required to include a security and emergency management plan, which details how the agency would coordinate with first responder (law enforcement and fire) agencies, their respective County Office of Emergency Services and the Statewide Standardized Emergency Management System (SSEMS).

INTERNATIONAL BORDER CROSSINGS

Within the SCAG region, there are three international ports of entry along the Mexico–Imperial County border: two at Calexico (Calexico and Calexico-East); and one at Andrade (near Yuma, Arizona). Traffic from these ports enters California on the I-8 corridor. U.S. Customs and the Border Protection Agency within the Department of Homeland Security (DHS) are charged with the management and control of the official ports of entry. Security planning includes local emergency services, as well as the CHP.

Caltrans District 11 has prepared the 2021 California–Baja California Border Master Plan (Caltrans 2021a), which is a binational comprehensive approach to coordinate planning and delivery of international land Ports of Entry (POEs) and transportation infrastructure projects serving the POEs in the region. The initial Border Master Plan was completed in 2008, and later updated in 2014 with the participation of government agencies from both sides of the international border. The 2021 update reflects a more innovative and sustainable approach to address the transportation needs at the border region. Security was a major consideration in the development of the Border Master Plan.

SECURITY AT SEAPORTS

Security at the ports is the joint responsibility of the U.S. Coast Guard, the U.S. Customs and Border Protection Agency, federal and State Homeland Security offices, Port police agencies, Harbor Patrols and emergency service agencies. The U.S. Coast Guard leads the local Area Maritime Security Commission, which coordinates activities and resources for all port stakeholders.

The POLA has a dedicated police force, the Los Angeles Port Police, to patrol the area within the jurisdiction of the Port of Los Angeles (Port of Los Angeles 2023). The Port Police enforce federal, state, and local public safety statutes, as well as environmental and maritime safety regulations, in order to maintain the free flow of commerce and produce a safe, secure environment that promotes uninterrupted Port operations. In addition, the Port Police partner with other law enforcement agencies, such as the Los Angeles Police Department, CHP, and Customs and Border Protection in the Cargo Theft Interdiction Program (CTIP), which investigates cargo theft, and the High Intensity Drug Trafficking Area, which targets drug trafficking at the Ports of Los Angeles and Long Beach (Port of Los Angeles 2023). Furthermore, per the Maritime Transportation Security Act of 2002, the Port of Los Angeles works with the Coast Guard to develop security plans for facilities at the port.

Similar to the Port of Los Angeles, security at the Port of Long Beach entails physical security enhancements, police patrols, coordination with federal, State, and local jurisdictions to develop security plans for the port area and investigate suspicious incidents and obtaining federal funding to pay for these enhancements (Port of Long Beach 2023). As with the Port of Los Angeles, the Port of Long Beach works with the Coast Guard to develop security plans for facilities at the port. In contrast to the Port of Los Angeles, however, the Port of Long Beach does not have its own dedicated police force. Instead, the Long Beach Police Department is responsible for patrolling the port area (Long Beach Police Department 2023). In doing so, the Port reimburses the Long Beach Police and Fire Departments for their port-related activities and expenses. The Port also funds its own Harbor Patrol to supplement law enforcement work conducted by other agencies such as the Coast Guard.

In addition to the above, several programs are in place to effectively monitor and screen seaport cargo. They include the following.

INVESTIGATIONS

The federal Container Security Initiative (CSI) directs Customs agents, working with host governments, to inspect and examine all cargo containers deemed high-risk before they are loaded on U.S.-bound vessels. The CSI contains four core elements: identifying high-risk containers, pre-screening containers before they reach U.S. ports of entry, using technology to prescreen high-risk containers and developing and using smart and secure containers.

INSPECTIONS

The 24-hour rule requires manifest information on cargo containers to be delivered to U.S. Customs 24 hours before the container is loaded onto a vessel in a foreign port. Customs has the right to stop any container from being loaded, for any reason, while the container is still overseas.

PARTNERSHIPS

Most of the largest U.S. importers and their trading partners participate in the Customs-Trade Partnership Against Terrorism (C-TPAT), a public-private partnership designed to improve security standards throughout the cargo supply chain.

TECHNOLOGY

U.S. Customs uses X-ray, gamma ray and radiation-detection devices to screen incoming cargo at U.S. ports.

3.17.2 REGULATORY FRAMEWORK

This regulatory framework focuses on the federal, state, and local statutes and regulations where the primary objective is improvement of transportation systems, standards, and travel demand measures. However, there are other regulations that are focused on increased energy efficiency and reduction of greenhouse gas emissions, that if accomplished would be expected to contribute to improvement in traffic levels. Those regulations have been addressed respectively in Section 3.6, *Energy*, and Section 3.8, *Greenhouse Gases*, of this 2024 PEIR.

FEDERAL

FEDERAL CLEAN AIR ACT (CAA) TRANSPORTATION CONFORMITY

The federal CAA requirements for transportation conformity are discussed in detail in Section 3.3, *Air Quality*, of this 2024 PEIR.

METROPOLITAN TRANSPORTATION PLANNING

The provisions of Title 23 USC Section 134 *et seq.* provides direct authority for Metropolitan Planning Organizations (MPOs) such as SCAG to act as a regional transportation planning organization with direct responsibility for carrying out the Regional Transportation Plan (RTP). SCAG is tasked with carrying out the transportation planning process and adopting long-range transportation plans. Collaborating with state and public transportation operators, SCAG undertakes a performance-driven, outcome-based approach to planning for the six county

regions. SCAG must prepare a transportation plan to be updated every four years, including identification of transportation facilities and factors for each mode of non-motorized transport to major roadways, transit, multimodal and intermodal facilities, and connectors that should function as an integrated system serving regional transportation functions. The scope of transportation planning process is to provide consideration of projects and strategies that will achieve the following objectives (23 U.S.C. Section 134(g)(3)(A)):

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety of the transportation system for motorized and non-motorized users;
- Increase the security of the transportation system for motorized and non-motorized users;
- Increase the accessibility and mobility of people and for freight;
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns; Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation;
- Emphasize the preservation of the existing transportation system;
- Improve the resiliency of and reliability of the transportation system, and reduce stormwater impacts of surface transportation; and
- Enhance travel and tourism

INFRASTRUCTURE INVESTMENT AND JOBS ACT (IIJA)

On November 15, 2021, President Biden signed the Infrastructure Investment and Jobs Act (IIJA) (Public Law 117-58, also known as the “Bipartisan Infrastructure Law”) into law. The Bipartisan Infrastructure Law is the largest long-term investment in our infrastructure and economy in US history. It provides \$550 billion over fiscal years 2022 through 2026 in new Federal investment in infrastructure, including in roads, bridges, and mass transit, water infrastructure, resilience, and broadband.

FIXING AMERICA’S SURFACE TRANSPORTATION ACT (FAST)

The Fixing America’s Surface Transportation (FAST) Act (Pub. L. No. 114-94), enacted in 2015, builds on the changes to federal transportation planning law made by MAP-21. It was the first long-term surface transportation authorization enacted in a decade that provides long-term funding certainty for surface transportation (FHWA 2018). The FAST Act authorized \$305 billion over fiscal years 2016 through 2020 for highway improvements, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs. The FAST Act maintains the focus on safety, keeps intact the established structure of the various highway-related programs, continues efforts to streamline project delivery, and provides a dedicated source of federal dollars for freight projects.

Under the FAST Act and its predecessors, MPOs such as SCAG must prepare long-range transportation plans and update them every four years if they are in areas designated as “nonattainment” or “maintenance” for federal air quality standards. Per federal requirements, long-range transportation plans must (Public Law 114–94):

- Be developed through an open and inclusive process, that ensures public input; seeks out and considers the needs of those traditionally underserved by existing transportation systems;
- Consults with resource agencies to ensure potential problems are discovered early in the planning process;
- Be developed for a period of not less than 20 years into the future; long-range transportation plans must reflect the most recent assumptions for population, travel, land use, congestion, employment and economic activity;
- Have a financially-constrained element, transportation revenue assumptions must be reasonable, and the long range financial estimate must take into account construction-related inflation costs;
- Include a description of the performance measures and performance targets used in assessing the performance of the transportation system;
- Include a system performance report evaluating the condition and performance of the system with respect to performance targets adopted by the state that detail progress over time;
- Include multiple scenarios for consideration and evaluation relative to the state performance targets as well as locally-developed measures;
- Conform to the applicable federal air quality plan, called the State Implementation Plan, for ozone and other pollutants for which an area is not in attainment; and
- Consider planning factors and strategies in the local context.

CONGESTION MANAGEMENT PROCESS (23 USC SECTION 134(K))

A congestion management process (CMP) is a systematic and regionally-accepted approach for managing congestion that provides accurate, up-to-date information on transportation system performance and assesses alternative strategies for congestion management that meet state and local needs. A CMP is required in metropolitan areas with a population exceeding 200,000, known as Transportation Management Areas (TMAs). Federal requirements state that in all TMAs the CMP must be developed and implemented as an integrated part of the metropolitan transportation planning process (23 U.S.C. Section 134).

FEDERAL HIGHWAY ADMINISTRATION CONGESTION MANAGEMENT PROCESS

23 CFR Section 450.320 requires transportation management agencies like SCAG to address congestion management through a process that provides for safe and effective integrated management and operation of the multimodal transportation system, based on a cooperatively developed and implemented metropolitan-wide strategy, of new and existing transportation facilities through the use of travel demand reduction and operational management strategies. Federal guidance recommends use of performance measures that includes vehicle-to-capacity ratios and level of service on a selected network of significant routes in a region.

STATE

REGIONAL TRANSPORTATION PLAN REQUIREMENTS

MPOs are required to prepare RTPs that also meet state requirements. Pursuant to Government Code Sections 65080 et seq. each MPO must prepare and adopt a regional transportation plan directed at achieving a coordinated and balanced regional transportation system, including, but not limited to, mass transportation, highway, railroad, maritime, bicycle, pedestrian, goods movement, and aviation facilities and services. The plan must be action-oriented and pragmatic, considering both the short-term and long-term future, and shall present clear, concise policy guidance to local and state officials.

Under California Code Section 14522, the California Transportation Commission (CTC) is authorized to prepare guidelines to assist in the preparation of RTPs. The CTC's RTP guidelines identify state and federal requirements for the development of RTPs, and methods to achieve these requirements. The guidelines suggest that projections used in the development of an RTP should be based upon available data (such as from the Bureau of the Census), use acceptable forecasting methodologies, and be consistent with the Department of Finance baseline projections for the region. The guidelines further state that the RTP should identify and discuss any differences between the agency projections and those of the Department of Finance. The RTP guidelines include provisions for complying with Senate Bill 375 (see below), as well as guidelines for regional travel demand modeling (CTC 2017).

SUSTAINABLE COMMUNITIES AND CLIMATE PROTECTION ACT (SENATE BILL 375)

A detailed discussion of the Sustainable Communities and Climate Protection Act of 2008 (Senate Bill [SB] 375, Chapter 728, Statutes of 2008), including subsequent updates such as the 2022 Scoping Plan, is provided in Section 3.8, *Greenhouse Gas Emissions*.

As noted in Section 3.8, *Greenhouse Gas Emissions*, of this 2024 PEIR, the revised (2018) SB 375 GHG emissions reduction targets for all the state's MPOs would result in a statewide reduction of 19 percent (compared to 18 percent from the prior SCS achievement). However, a 25 percent reduction is needed to meet the transportation-sector GHG emissions reduction goals of the 2017 Scoping Plan. The difference between the 19 percent reduction resulting from CARB's updated SB 375 targets and the 25 percent necessary reduction is referred to in other various CARB documents as the "gap." In order to reduce the "gap" a transformation in the State's transportation system is necessary. As discussed in the 2022 Scoping Plan, transforming the transportation sector goes beyond phasing out combustion technology and producing cleaner fuels. CARB explains that managing total demand for transportation energy by reducing the miles people need to drive on a daily basis is also critical as the state aims for a sustainable transportation sector in a carbon neutral economy. Though GHG emissions are declining due to cleaner vehicles and fuels, rising VMT can offset the effective benefits of adopted regulations.

Even under full implementation of Executive Order N-79-20 and CARB's Advanced Clean Cars II Regulations (see Section 3.8 for further discussion), with 100 percent ZEV sales in the light-duty vehicle sector by 2035, a significant portion of passenger vehicles will still rely on internal combustion engine technology. Accordingly, VMT reductions will play an indispensable role in reducing overall transportation energy demand and achieving the state's climate, air quality, and equity goals. After a significant pandemic-induced reduction in VMT during 2020, passenger VMT has steadily climbed back up and is now closing in on pre-pandemic levels. Driving alone with no passengers remains the primary mode of travel in California, amounting to 75 percent of the mode share for daily commute trips. Conversely, the transit industry, which was significantly impacted during the lockdown months, and has struggled to recover; ridership only averages two-thirds of pre-pandemic levels, and service levels also lag behind.

Sustained VMT reductions have been difficult to achieve for much of the past decade, in large part due to entrenched transportation, land use, and housing policies and practices. Specifically, historic decision-making favoring single-occupancy vehicle travel has shaped development patterns and transportation policy, generating further growth in driving (and making transit, biking and walking less viable alternatives). These policies have also reinforced long-standing racial and economic injustices that leave people with little choice but to spend significant time and money commuting long distances, placing a disproportionate burden on low-income Californians, who pay the highest proportion of their wages on housing and transportation. While CARB has included VMT reduction targets and strategies in the Scoping Plan and appendices, these targets are not regulatory requirements, but would inform future planning processes. CARB is not setting regulatory limits on VMT in the 2022 Scoping Plan; the authority to reduce VMT largely lies with state, regional, and local transportation, land use, and housing agencies, along with the Legislature and its budgeting choices.

Appendix E (Sustainable and Equitable Communities) of the 2022 Scoping Plan elaborates on reasons for reducing VMT and identifies a series of policies that, if implemented by various responsible authorities, could help to achieve the recommended VMT reduction trajectory (and related mode share increases for transit and active transportation). These policies aim to advance four strategic objectives:

1. Align current and future funding for transportation infrastructure with the state's climate goals, preventing new state-funded projects from inducing significant VMT growth and supporting an ambitious expansion of transit service and other multimodal alternatives.
2. Move funding for transportation beyond the gasoline and diesel taxes and implement fuel-agnostic pricing strategies that accomplish more productive uses of the roadway network and generate revenues to further improve transit and other multimodal alternatives.
3. Deploy autonomous vehicles, ride-hailing services, and other new mobility options toward high passenger-occupancy and low VMT-impact service models that complement transit and ensure equitable access for priority populations.
4. Encourage future housing production and multi-use development in infill locations and other areas in ways that make future trip origins and destinations closer together and create more viable environments for transit, walking, and biking.

The 2022 Scoping Plan also includes the following strategies for achieving success with regard to VMT:

- Achieve a per capita VMT reduction of at least 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045.¹
- Reimagine new roadway projects that decrease VMT in a way that meets community needs and reduces the need to drive.

¹ While the per capita VMT reductions from the 2022 Scoping Plan are not regulatory targets or requirements, they should inform future policy and planning discussions. SCAG has expressed concern regarding the documentation and support for CARB's 2022 Scoping Plan VMT reduction targets and that these targets may not be wholly achievable through SCS strategies. As acknowledged by CARB's SB 150 report, achieving VMT reductions in California is extremely difficult. The 2022 Scoping Plan relies on many of the same or similar strategies already included in the SCS, and it is unclear whether implementation of the suggested strategies in Appendix E of the Scoping Plan would be sufficient to reach the VMT and GHG reduction targets in the 2022 Scoping Plan. See SCAG's June 24, 2022 letter to CARB re: Draft 2022 Climate Change Scoping Plan. See <https://www.arb.ca.gov/lists/com-attach/4427-scopingplan2022-AXICZwZmVGBVDANg.pdf>.

- Invest in making public transit a viable alternative to driving by increasing affordability, reliability, coverage, service frequency, and consumer experience.
- Implement equitable roadway pricing strategies based on local context and need, reallocating revenues to improve transit, bicycling, and other sustainable transportation choices.
- Expand and complete planned networks of high-quality active transportation infrastructure.
- Channel the deployment of autonomous vehicles, ride-hailing services, and other new mobility options toward high passenger-occupancy and low VMT-impact service models that complement transit and ensure equitable access for priority populations.
- Streamline access to public transportation through programs such as the California Integrated Travel Project.
- Ensure alignment of land use, housing, transportation, and conservation planning in adopted regional plans, such as RTP/SCSs, regional housing needs assessments (RHNA), and local plans (e.g., general plans, zoning, and local transportation plans), and develop tools to support implementation of these plans.
- Accelerate infill development and housing production at all affordability levels in transportation-efficient places, with a focus on housing for lower-income residents.

SENATE BILL 743

SB 743 (Steinberg) was signed into law by Governor Jerry Brown on September 27, 2013, and encourages development of mixed-use, transit-oriented infill projects by: (1) establishing new CEQA exemptions for transit-oriented developments located in Transit Priority Areas (TPAs) that are consistent with an adopted Specific Plan; (2) eliminating the requirement to evaluate aesthetic and parking impacts in those targeted development areas; and (3) directing the OPR to develop an alternative metric to evaluate transportation-related impacts under CEQA.

SB 743 exempts from CEQA, a residential, employment center, or mixed-use development project, including any subdivision, or any zoning, change that meets all of the following criteria:

- The project is proposed within a transit priority area.
- The project is undertaken to implement and is consistent with a specific plan for which an environmental impact report has been certified.
- The project is consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy accepted by the State Air Resources Board (Cal. Pub. Res. Code Section 21155.4).

Furthermore, “[a]esthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment.” (Cal. Pub. Res. Code Section 21099(d)). However, the exemption for aesthetic impacts does not include impacts to historic or cultural resources. Local governments retain their ability to regulate a project’s transportation, aesthetics, and parking impacts outside of the CEQA process pursuant to local design review ordinances or other discretionary powers.

A TPA is an area that is located within one-half mile of an existing or planned major transit stop. A “major transit stop” refers to a site containing an existing rail transit station 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.

To qualify as a TPA, a planned major transit stop needs to be scheduled for completion within the planning horizon included in the adopted FTIP or RTP.

For infill development, including transit-oriented development (TODs), SB 743 provides a rationale for the development of a new metric to evaluate CEQA transportation impacts. Prior to SB 743, CEQA transportation impacts were primarily assessed (at least at the project level) through “Level of Service” (LOS) and other congestion or delay-based analyses, which focused exclusively on motor vehicle delay. This often penalizes infill and active transportation projects. SB 743 establishes that the new transportation impact analysis methodology should appropriately balance the needs of congestion management with statewide goals related to transit-oriented mixed-use infill development, promotion of public health through active transportation, and reduction of GHG emissions. These principles complement the goals and policies of the Plan outlined in Chapter 2, *Project Description*, of this 2024 PEIR.

SB 743 directed OPR to identify appropriate criteria for the evaluation of transportation impacts. OPR selected VMT as the preferred transportation impact metric for statewide application. SB 743 also established that aesthetic and parking effects of a residential, mixed-use residential, or employment center projects on an infill site within a TPA are not significant impacts on the environment. The revised CEQA Guidelines that implement SB 743 became effective on December 28, 2018, and indicate that VMT is the basis for evaluation of transportation impacts (CEQA Guidelines Section 15064.3). Vehicle LOS and similar measures related to delay are not identified as appropriate metrics for determining the significance of transportation impacts under CEQA, although they may still be appropriate for evaluation of projects as part of the planning process.

CEQA Guidelines section 15064.3(c) indicates that each jurisdiction throughout the state has until July 1, 2020, this requirement to adopt VMT as the metric for evaluation of transportation impacts shall apply statewide, but that until that date, lead agencies may elect to use VMT and/or LOS to analyze transportation impacts (although CEQA has already been revised to indicate VMT as the appropriate metric for evaluation of transportation impacts). It is important to note that SB 743 is not intended to require the inclusion of heavy-duty truck trips, utility vehicles, or other trips from non-passenger vehicles or light-duty truck in the VMT analysis.

The following state guidance has been produced:

- Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018b);
- The 2017 and 2022 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals (CARB 2019; CARB 2022);
- Caltrans 2020-2024 Strategic Plan (Caltrans 2021b); and
- Caltrans Interim Local Development Intergovernmental Review Safety Review Practitioners Guidance (Caltrans 2020).

With respect to identifying what represents an appropriate threshold of significance for VMT impacts, the California Air Resources Board (CARB) published the *2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* (CARB 2019) which included *non-binding* technical information on what level of statewide VMT reduction, in the judgment of CARB staff, would promote achievement of statewide GHG emission reduction targets. CARB asserted at that time that the then-adopted SCSs throughout the state “would achieve in aggregate, a nearly 18 percent reduction in statewide per capita on-road light-duty transportation-related GHG emissions relative to 2005 by 2035, if those SCSs were successfully implemented.” The 2019 CARB Report was based on modeling that incorporated cleaner technologies and fuels (CTF) assumptions consistent with the 2017 Scoping

Plan Update and the 2016 Mobile Source and provided an “alternate assessment tool for jurisdictions that choose to use them to complete analyses directed by the CEQA Guidelines.” The CARB Report found that (CARB 2019):

*Certain land use development projects located in areas that would produce **rates of total** VMT per capita that are approximately 14.3 percent lower than existing conditions, or **rates of light-duty** VMT per capita that are approximately 16.8 percent lower than existing conditions (either lower than the regional average or other appropriate planning context) could be, by virtue of their location and land use context, interpreted to be consistent with the transportation assumptions embedded in the 2017 Scoping Plan and with 2050 State climate goals. (Emphasis in original).*

However, CARB noted that the modeling used for the CTF forecast identifies ratios of total statewide VMT to population and that the suggested per capita reductions are not household generated VMT and that values are not directly comparable to output from a local or regional travel demand model.

Published prior to the 2022 Scoping Plan, the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR Technical Advisory) also provided non-binding recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures. OPR cited to CARB’s 2017 *Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* to reiterate that “at present, consistency with RTP/SCSs does not necessarily lead to a less-than-significant VMT impact.” (OPR 2018b)

OPR found at that time that (OPR 2018b):

Based on OPR’s extensive review of the applicable research, and in light of an assessment by the California Air Resources Board quantifying the need for VMT reduction in order to meet the State’s long-term climate goals, OPR recommends that a per capita [residential] or per employee [office] VMT that is fifteen percent below that of existing [2017] development may be a reasonable threshold.

OPR further recommended a net increase in total retail VMT compared to then existing (2017) may indicate a significant transportation impact (OPR 2018b).

OPR went on to indicate that (OPR 2018b):

Lead agencies can evaluate each component of a mixed-use project independently and apply the significance threshold for each project type included (e.g., residential and retail). Alternatively, a lead agency may consider only the project’s dominant use. In the analysis of each use, a project should take credit for internal capture. Combining different land uses and applying one threshold to those land uses may result in an inaccurate impact assessment.

Since the SCAG Regional Travel Demand Model generates VMT from all uses within the region, the estimated VMT cannot be compared to OPRs targets because it is not possible to separate out the land uses.

For roadway capacity projects, the OPR Technical Advisory recommends developing a project-level threshold based on VMT levels required to achieve legally mandated GHG emission reduction targets (OPR 2018b):

- Propose a fair-share allocation of those budgets to their jurisdiction (e.g., by population);
- Determine the amount of VMT growth likely to result from background population growth, and subtract that from their “budget”;

- Allocate their jurisdiction's share between their various VMT-increasing transportation projects, using whatever criteria the lead agency prefers.

OPR also provides guidance on how to estimate VMT impacts from roadway expansion projects and suggests the following general mitigation and alternatives (OPR 2018b):

- Tolling new lanes to encourage carpools and fund transit improvements
- Converting existing general purpose lanes to HOV or HOT lanes
- Implementing or funding off-site travel demand management
- Implementing Intelligent Transportation Systems (ITS) strategies to improve passenger throughput on existing lanes

Additional project-level mitigation measures including in lieu mitigation fees to reduce VMTs are also identified.

SENATE BILL 695 STATE HIGHWAY SYSTEM DATA AND INFORMATION

Signed into law in October 2023, SB 695 requires DOT to prepare and make available on its internet website historical data and information about projects on the state highway system covering the projects on a fiscal year basis on the state highway system from July 1, 2018, to June 30, 2023, inclusive. DOT is also required to make this data and information available no later than January 1, 2025. DOT, in consultation with the commission, shall develop a format for the data and information. The historical data and information shall include, but is not limited to, all of the following:

- The number of total lane miles in the state highway system.
- The number of new total lane miles added to the state highway system.
- Of the lane miles added to the state highway system, a breakdown of the number of miles added by type, including, but not limited to, general purpose lanes, auxiliary lanes, managed lanes, including high-occupancy vehicle lanes, and interchanges, as well as information on improvements to interchanges.
- A project description of each project that added lane miles to the state highway system.
- The number of miles of the state highway system that were relinquished.
- The number of miles of the state highway system that were converted from a general purpose lane to a managed lane, including a high-occupancy vehicle lane, and a high-occupancy vehicle lane to a high-occupancy toll lane or other type of lane.
- The number of homes and businesses that were relocated due to the acquisition of rights-of-way for the new lane miles on the state highway system.
- The number of new bike lane miles added to state highways, broken down by Class I, Class II, Class III, and Class IV.
- The number of new sidewalk miles added to state highways and the number of existing sidewalks that were reconstructed to improve accessibility and the safety of pedestrians.

CEQA STREAMLINING FOR INFILL PROJECTS SENATE BILL (SB) 226

This regulation is addressed in detail in Section 3.11, *Land Use and Planning*, of this 2024 PEIR.

CALIFORNIA TRANSPORTATION PLAN (CTP)

The CTP (SB 64; Chapter 711 Section 14536 amended 65073.1) is prepared by the California Department of Transportation every 5 years to provide a long-range policy framework to meet our future mobility needs and reduce greenhouse gas emissions. The CTP defines goals, performance-based policies, and strategies to achieve our collective vision for California's future statewide, integrated, multimodal transportation system by envisioning a sustainable system that improves mobility and enhances our quality of life. The CTP is developed in collaboration with transportation stakeholders such as SCAG. Through ongoing engagement, the CTP is intended to provide goals and visions to support a fully integrated, multimodal, sustainable transportation system that supports the quality of life: prosperous economy, human and environmental health, and social equity. The CTP fulfills the state's goal to meet the Federal Transportation Improvement Program.

SENATE BILL 391

Senate Bill 391 was signed into law in October 2009 by Governor Schwarzenegger and requires the CTP to support 80 percent reduction in GHGs below 1990 levels by 2050. The bill also requires Caltrans to update the CTP every five years and provide an assessment of how the implementation of sustainable communities strategies will influence the configuration of the statewide multimodal transportation system. The bill requires Caltrans to consult with and coordinate its planning activities with specified entities and to provide an opportunity for public input.

ASSEMBLY BILL 1358

AB 1358, also known as the Complete Streets Act of 2008, amended the California Government Code Section 65302 to require that any substantive revisions to a city or county's Circulation Element include provisions for accommodations of all roadway users, including bicyclists and pedestrians.

2020 MOBILE SOURCE STRATEGY

This regulation is addressed in detail in Section 3.8, *Greenhouse Gas Emissions*, of this 2024 PEIR.

CALIFORNIA CONGESTION MANAGEMENT PROGRAM

The CMP is the State mandated program (Government Code 65089) aimed at reducing congestion on highways and roads in California. The CMP establishes a designated roadway network of regional significance, roadway service standards, multi-modal performance standards and a land use analysis element to identify and mitigate multijurisdictional transportation impacts resulting from local land use decisions. Federal, State and local transportation funding is contingent upon local jurisdiction compliance with the CMP.

CALIFORNIA VEHICLE CODE

The California Vehicle Code (CVC) provides requirements for ensuring emergency vehicle access regardless of traffic conditions. CVC sections 21806(a)(1), 21806(a)(2), and 21806(c) define how motorists and pedestrians are required to yield the right-of-way to emergency vehicles.

EXECUTIVE ORDER (EO) B-16-2012 AND B-48-2018 ON ZERO-EMISSIONS VEHICLES

EO B-16-2-12 was signed by Governor Brown on March 23, 2012, to encourage development of the zero-emissions vehicles (ZEVs) and related infrastructure to protect the environment, stimulate the economy, and improve the

quality of life in the region. The goals that are promulgated include setting aggressive targets to meet goals in 2015, 2020, and 2025, supporting the rapid commercialization of clean vehicles, and pursuing policies to promote private sector investment and made-in-California technologies. Refer to Section 3.8, *Greenhouse Gas Emissions*, of this 2024 PEIR for additional information regarding EO B-16-2-12.

In February 2013, an interagency working group developed the ZEV Action Plan which identifies specific strategies and actions that state agencies will take to meet the milestones of the Executive Order. The ZEV Action Plan states that EVs are crucial to achieving the state's 2050 greenhouse gas goal of 80 percent emission reductions below 1990 levels, as well as meeting federal air quality standards, and that achieving 1.5 million ZEVs by 2025 is essential to advance the market and put the state on a path to meet these requirements (Governor's Interagency Working Group on Zero-Emission Vehicles 2013). The ZEV Action Plan was updated in 2016 and again in 2018, with targets of 200 hydrogen fueling stations and 250,000 electric vehicle chargers to support 1.5 million ZEVs on California roads by 2025 and 5 million by 2030. (Governor's Interagency Working Group on Zero-Emission Vehicles 2016 and 2018). Building on the success and lessons of California's three ZEV Action Plans in 2013, 2016, and 2018, the state is developing the ZEV Market Development Strategy, which is designed to help California collectively move forward and deliver zero-emission benefits to all Californians (Governor's Office of Business and Economic Development 2023). Refer to Section 3.8, *Greenhouse Gas Emissions*, of this 2024 PEIR for additional information.

EO B-32-15 INTEGRATED ACTION PLAN TO IMPROVE CALIFORNIA'S FREIGHT SYSTEM

On July 16, 2015, Governor Brown issued EO B-32-15, which orders the Secretary of the California State Transportation Agency, the Secretary of the California Environmental Protection Agency, and the Secretary of the Natural Resources Agency to lead other relevant state departments including the California Air Resources Board, the California Department of Transportation, the California Energy Commission, and the Governor's Office of Business and Economic Development to develop an integrated action plan by July 2016 that establishes clear targets to improve freight efficiency, transition to zero-emissions technologies, and increase competitiveness of California's freight system. The action plan shall identify state policies, programs, and investments to achieve these targets, and be informed by existing state agency strategies, including the California Freight Mobility Plan, Sustainable Freight Pathways to Zero and Near-Zero Emissions, Integrated Energy Policy Report, as well as broad stakeholder input. The California Sustainable Freight Action Plan was adopted in July 2016 (Office of Governor Edmund G. Brown Jr. 2015).

EXECUTIVE ORDER N-8-23

On July 10, 2023, Governor Newsom issued Executive Order N-8-23, creating an Infrastructure Strike Team to work across state agencies to maximize federal and state funding opportunities for California innovation and infrastructure projects. Executive Order N-8-23 has the potential to facilitate coordinated and streamlined project review and permitting processes in California, as well as the development of a robust California-specific project tracking system. Under the order, the Infrastructure Strike Team is tasked with identifying priority infrastructure projects; supporting governmental coordination on review, permitting, and approvals; and creating working groups focused on specific project categories, such as transportation, energy, hydrogen, environmental remediation, broadband, water, and zero-emission vehicles. The order's approach is similar to that taken in the federal Fixing America's Surface Transportation Act (FAST-41), designed to improve the timeliness, predictability, and transparency of the federal environmental review and authorization process for covered infrastructure projects. The Infrastructure Strike Team is also tasked with holding government oversight bodies accountable to "deliver results in an expedited and effective fashion" and establishing dashboards to track the progress of priority

projects, including milestones, funding, federal application deadlines, workforce development, and progress toward equity goals.

CALTRANS 2020-2024 STRATEGIC PLAN

The most recent Caltrans 2020-2024 Strategic Plan (Caltrans 2021b) redefines the Caltrans mission statement and provides a vision statement. The Caltrans mission statement is: *Provide a safe and reliable transportation network that serves all people and respects the environment.* The Caltrans vision is: *A brighter future for all through a world-class transportation network.* Unlike the previous Strategic Plan (2015-202), the 2020-2024 Caltrans Strategic Plan does not have a specific goal focused on sustainability. Instead, this Strategic Plan integrates sustainability principles across all goals, addressing people, planet, and prosperity comprehensively as we implement the Plan's strategies. The document identifies six goals: (1) Safety First; (2) Cultivate Excellence; (3) Enhance and Connect the Multimodal Transportation Network; (4) Strengthen Stewardship and Drive Efficiency; (5) Lead Climate Action; and (6) Advance Equity and Livability in All Communities. The document identifies numerous strategies including the following strategies with respect to multimodal travel: Use operational strategies and incentives to reduce VMT through increased high occupancy modes, active transportation, and other TDM methods; improve network operations and invest in networks for walking, cycling, transit, and multimodal trips; better utilize technology and data to create a seamless multimodal travel experience and improve travel demand management; and optimize and expand equitable pricing.

CALTRANS INTERIM LOCAL DEVELOPMENT INTERGOVERNMENTAL REVIEW SAFETY REVIEW PRACTITIONERS GUIDANCE

Caltrans developed this guidance for Caltrans use in providing comments to local jurisdictions through the Intergovernmental Review process (Caltrans 2020). This guidance document supports the implementation of the Strategic Management Plan including achieving the identified targets.

2023 CALIFORNIA INFRASTRUCTURE AND BUDGET LEGISLATION

On July 10, 2023, Governor Gavin Newsom signed into law a slate of bills to accelerate critical infrastructure projects across California that help build a 100-percent clean electric grid, ensure safe drinking water, augment the state's water supply, and modernize its transportation system (Office of Governor Gavin Newsom 2023). The legislation facilitates the Governor's intent to take full advantage of approximately \$180 billion in state, local, and federal infrastructure funds over the next ten years, which is critical to achieving California's climate and clean energy goals while also creating up to 400,000 jobs. By streamlining permitting and allowing state agencies to use new project delivery methods, this legislation will maximize taxpayer dollars and accelerate timelines of projects throughout the state, while ensuring appropriate environmental review and community engagement. Governor Newsom also signed components of the 2023-24 state budget agreement, which includes \$37.8 billion in total budgetary reserves, the largest in state history, including \$22.3 billion in the "Rainy Day Fund" amid continued global economic uncertainty. The budget closes a shortfall of more than \$30 billion while preserving major investments in public education, health care, climate action, addressing homelessness, and other priorities.

AUTONOMOUS VEHICLE PROGRAM REGULATION

On May 31, 2018, pursuant to Decision 18-05-043, the CPUC authorized two pilot programs for the private prearranged transportation of passengers in test AVs (CPUC 2023b):

- The "Drivered AV Passenger Service" pilot program allows for the provision of passenger service in test AVs with a driver in the vehicle. Under this pilot program, a safety driver is available to assist with operations if needed.
- The "Driverless AV Passenger Service" pilot program allows for the provision of passenger service in test AVs without a driver in the vehicle. Under this pilot program, a communication link between passengers and "remote operators" of the vehicle must be available and maintained at all times during passenger service.

To be eligible to participate in the CPUC's AV Passenger Service pilot programs, participants must possess the appropriate corresponding Autonomous Vehicle Tester Program Manufacturer's Testing Permit from the California DMV for AV testing with a driver or testing without a driver and comply fully with DMV's AV testing regulations (California Code of Regulations, Title 13, Article 3.7). Under the AV Passenger Service pilot programs, monetary compensation may not be charged for any rides in test AVs. On November 20, 2020, pursuant to Decision 20-11-046 as modified by Decision 21-05-017, the CPUC authorized Phase I of two deployment programs: one for drivered and one for driverless autonomous vehicle service. Under the Phase I Deployment Programs, participants are authorized to charge fares for AV passenger service (see further discussion above in Environmental Setting). In addition, applicants to the Driverless Pilot Program and the Driverless Phase I Deployment Program are required to submit Passenger Safety Plans that outline their plans to protect passenger safety. Applicants in the CPUC's AV deployment programs must obtain an Autonomous Vehicle Deployment Permit from the California DMV.

REGIONAL

CALIFORNIA TRANSPORTATION COMMISSION ACTIVE TRANSPORTATION PROGRAM GUIDELINES

Under Senate Bill (SB) 99 (Chapter 359, Statutes 2013) and AB 101 (Chapter 354, Statutes of 2013), the CTC is authorized to prepare guidelines to assist in the preparation of Active Transportation Plans (ATPs). An ATP includes bicycle, pedestrian, safe-routes to-school, and other comprehensive criteria to be included in the circulation element of its general plan in compliance with Complete Streets Act. The CTC's RTP guidelines suggest that all projects within the SCAG region must be selected through a competitive process that meets the federal aid goals. These goals are included in the environmental, design, right-of-way, and construction phases of the infrastructure and non-infrastructure projects. All projects that are selected in the ATP are required to include a discussion of the estimated bicycle and pedestrian trips, facilities report, proposed land use and bicycle transportation facilities, and policies related to parking and ADA compliance (CTC 2023).

TRANSIT DEVELOPMENT PLANS

A Transportation Development Plan (TDP) updates a municipal or county operated transit system's goals and objectives, develops service alternatives, provides funding estimates, and produces a plan to implement recommended service improvements for a five-year period. A number of agencies within the SCAG have TDPs.

PLANS AND POLICIES RELATED TO COMPLETE STREET ACT OF 2008 (AB 1358; S. 2686)

The Complete Streets Act of 2008 (AB 1358) required cities and counties to incorporate Complete Streets in their general plan updates to ensure that transportation plans meet the needs of all users, including pedestrians, bicyclists, and transit users as well as children, older individuals, and individuals with disabilities, to travel safely and conveniently on streets and highways. In the SCAG region, all six of the counties have developed their own bicycle and pedestrian plans. Majority of these bicycle pathways are part of existing Class II path which provides on-street bike lanes, although a few are in Class I category, which mean that the path is separate from automobile traffic, and some are categorized as Class III pathways with on-street bike lanes further designated by signs.

LOCAL

COUNTY GENERAL PLAN CIRCULATION ELEMENTS

Each of the six counties within the SCAG region has prepared a Transportation or Circulation Element, as a required component of the General Plan. The Transportation or Circulation Element provides a summary of the existing conditions in the planning area, major issues, goals, and policies, as well as pertinent action programs related to traffic and circulation related to a variety of transportation systems (highway and local road networks, bus, rail, high speed rail, aviation network, harbors, bicycles, pedestrians, and rideshare). The Transportation or Circulation Element describes the major locations and corridors for existing and future travel based on land use patterns in order to develop a comprehensive, coordinated, and continuing transportation system for the region. Relevant policies include encouraging provision of transit service at a reasonable cost to the users and the community, encouraging the efficient use and conservation of energy and ease congestion, and, where the land use would support, providing for development of a mass transportation system that will provide a viable alternative to the automobile, and support a balance in transportation modes with public transit system that provides accessible service, particularly to the transit dependent. A transportation system will operate at regional, countywide, community, and neighborhood scales to provide connectivity between communities and mobility between jobs, residences, and recreational opportunities.

COUNTY GENERAL PLAN SAFETY ELEMENTS

Each of the six counties in the SCAG region prepared a Safety Element as a required component of the General Plan. The Safety Element generally discusses measures to abate the impacts in case of catastrophe for maintenance of the transportation infrastructure. The Traffic and Transportation Division under each county is responsible for developing plans and guidelines for the maintenance of traffic control devices, emergency travel routes in the event of an emergency, placement of barricades, and control of traffic and coordination with other departments to promote integrated disaster planning, response and mitigation efforts. Included in the Safety Element discussion are strategies for continuation of adequate critical infrastructure systems and services to assure adequate circulation, communications, and transportation services for emergency response in the event of disaster related systems disruptions.

IMPERIAL COUNTY BICYCLE MASTER PLAN

In February 2022, Imperial County updated its Regional Active Transportation Plan (Imperial County Transportation Commission 2022). In developing the Plan, the Imperial County Transportation Commission (ICTC) embarked on a mission to research, analyze, and engage with communities to understand how to best meet the active transportation needs of the Imperial Valley. As a county transportation commission, it is ICTC's responsibility to

work with their partners to plan and build an active transportation network that reflects the existing and future needs of the 180,000 plus residents of Imperial County. This plan is a tool that will help ICTC achieve short, mid, and long-term projects for walking, bicycling, use of public transit, and other related transportation modes.

LOS ANGELES COUNTY BICYCLE MASTER PLAN

Metro developed a Bicycle Transportation Strategic Plan (BTSP) in 2006 (Metro 2006) to be used by “the cities, the County of Los Angeles and transit agencies in planning bicycle facilities around transit and setting priorities that contribute to regional improvements. The goal is to integrate bicycle use in transportation projects.” In addition, Metro also created a Bicycle Transportation Account Compliance Document (BTA Document) to provide an “inventory and mapping of existing and proposed facilities, and an estimate of past and future expenditures for bicycle facilities.” In 2013, SCAG and Metro developed the Bike County Data Clearinghouse to assist LA County conduct bicycle counts. The Los Angeles County Department of Public Works adopted a Countywide Bicycle Master Plan in 2012, which was developed with the over-arching goal of increasing “bicycling throughout the County of Los Angeles through the development and implementation of bicycle-friendly policies, programs, and infrastructure.” The plan recommends the development of an interconnected network of bicycle corridors, with approximately 695 miles of bikeway facilities. This plan looks at the ridership and air quality benefits from cycling and also includes a list of existing and proposed bikeways in LA County (Los Angeles County Department of Public Works 2012).

ORANGE COUNTY BIKEWAYS STRATEGIC PLAN

The 2009 Orange County Commuter Bikeways Strategic Plan was developed “to encourage the enhancement of Orange County’s regional bikeways network, in order to make bicycle commuting a more viable and attractive travel option” (OCTA 2009). The plan identifies approximately 116 miles of priority bikeway projects. In 2012, the Orange County Transportation Authority provides an addendum to the existing plan with a Commuter Bikeways Strategic Plan (CBSP) that refines the regional bikeway networks and specified which bikeways are connected to priority locations including major transit investment areas, employment centers, stations, colleges, and universities (OCTA 2012).

RIVERSIDE COUNTY ACTIVE TRANSPORTATION PLANS

The Western Riverside Council of Governments (WRCOG) and the Coachella Valley Association of Governments (CVAG) have developed Active Transportation Plans for their respective jurisdictions covering most of Riverside County. The Western Riverside County Active Transportation Plan, released in June 2018, builds on the Western Riverside County Non-Motorized Transportation Plan (NMTP) (June 2010), by “updating active transportation network improvement projects, implementation strategies, and funding opportunities found in that plan” (Western Riverside Council of Governments 2018). The CVAG Active Transportation Plan, released in 2016 and revised in 2017, recognizes the “value of providing opportunities for local residents and visitors to bicycle for transportation and recreation and to have attractive opportunities to walk to transit stops, as well as to encourage people to use neighborhood electric vehicles (NEVs)” (Coachella Valley Association of Governments 2017).

SAN BERNARDINO COUNTY NON-MOTORIZED TRANSPORTATION PLAN

The Revised 2018 San Bernardino County Non-Motorized Transportation Plan’s goals include: (1) Increased bicycle and pedestrian access; (2) Increased travel by cycling and walking; (3) Routine accommodation in transportation

and land use planning; and (4) Improved bicycle and pedestrian safety (San Bernardino County Transportation Authority 2018).

VENTURA COUNTY BICYCLE MASTER PLAN

The 2007 Ventura County Bicycle Master Plan “provides a broad vision, strategies and actions for the improvement of bicycling” by maximizing funding sources for implementation; improving safety and encouraging cycling; expanding the network and support facilities; and enhancing the quality of life in and overall environmental benefits. Within the County of Ventura, many jurisdictions and municipalities also have a bicycle plan to encourage non-motorized commutes.

TRANSPORTATION DEMAND MANAGEMENT POLICIES AND ORDINANCES

Most local jurisdictions in California, including those within the SCAG region, have incorporated TDM policies into their General Plans and/or adopted TDM programs and ordinances as a means to address VMT reduction for development projects. Among the local jurisdictions in the region, the City of Los Angeles’ TDM program is well established and exemplifies programs being implemented throughout Southern California. The City adopted its first TDM Ordinance in 1993, which required non-residential developments of more than 25,000 square feet to implement a limited set of TDM strategies (Los Angeles Department of Transportation 2023). Since then, transportation options have expanded, including the regional rail and bike networks, new options such as bike share, carshare, and rideshare services, and alternatives such as telecommuting. The currently proposed update of the TDM Program responds to these changes, as well as changes in California state law that shape how cities analyze transportation. With the goal of reducing single-occupancy vehicle trips and the distances people travel in cars, updating the TDM Program is part of a larger state-mandated effort to improve air quality and reduce greenhouse gas emissions by promoting more sustainable transportation options. In addition, the proposed TDM Program aligns with City policies and planning documents. Mobility Plan 2035, the transportation element of the City’s General Plan, encourages greater use of TDM strategies to reduce drive-alone trips and includes updating the TDM ordinance as an implementation program. Both the City Council and the Mayor have identified updating the TDM ordinance as a priority, and it is an initiative in LA’s Green New Deal (the Sustainable City pLAN).

The updated ordinance would effectuate changes to the City’s TDM Program, which attempts to reduce the number of new car trips generated by large developments. Various strategies that have been promoted under TDM plans include alternate modes of transportation, including cycling and transit, as well as steps to redistribute trips outside of peak hours (Urbanize Los Angeles. 2021). While the existing program is currently limited to large commercial projects, the updated ordinance would expand the TDM program’s application to most multi-family residential developments with 16 or more residential units. Projects exempt from the updated TDM ordinance would include new buildings with:

- Less than 25,000 square feet of office space;
- Less than 50,000 square feet of retail or medical space;
- Less than 250,000 square feet of warehouse or industrial floor area;
- 50 or fewer hotel rooms;
- Fewer than 9,000 seats or 250,000 square feet in any arena or theater; and
- Fewer than 250 students in any charter or private school.

Requirements would be scaled for projects subject to the ordinance based on size and scope. Three different tiers are proposed, including Level 1, Level 2, and Level 3, which correspond to the size/intensity of projects of various land use types. A TDM calculator created by the City will allow project applicants to generate a "point target," based on the size of a development and estimated parking capacity. From there, developers would choose from a menu of pre-approved TDM strategies which include incentives for transit use, cycling, carpooling, and car sharing.

ACTIVE TRANSPORTATION PLANS/MOBILITY PLANS

In addition to county plans, many local jurisdictions have developed their own mobility plans and active transportation plans, or include active transportation components in the Circulation Element of their General Plan. Many street enhancement projects or capital improvement projects include active transportation elements as well. For example, many street improvement projects may include the striping of bikeways or new developments may include sidewalk enhancements. For example, the City of Los Angeles' Mobility Plan 2035 – one of the Elements of the City's General Plan – lays out the policy foundation for achieving a transportation system that balances the needs of all road users (Los Angeles Department of City Planning 2023). The priorities of the Mobility Plan 2035 include:

- Safety First: Focusing on safety, education, and enforcement
- Access for all Angelenos: Increasing access through greater community connections
- World Class Infrastructure: Investing in the construction of Complete Streets Networks
- Collaboration, Communications, and Informed Choices: Using open data and information to inform future policy considerations
- Clean Environment & Healthy Communities: Tackling issues related to the overall health and sustainability of Los Angeles' neighborhoods

The Complete Streets Design Guide accompanies the Mobility Plan 2035, outlining the vision for designing safe, accessible, and vibrant streets in Los Angeles. The guide compiles design concepts and best practices that promote safe and accessible streets. The updated Streets Dimension Standard Plan (Standards S-470-1) reflects an expanded suite of street arterials and non-arterials to align with the goals and policies of the Mobility Plan 2035.

3.17.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant adverse impacts to transportation, if the Plan would exceed the following significance criteria, in accordance with Appendix G of the CEQA Guidelines:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b).
- Substantially increase hazards due to geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

- Result in inadequate emergency access (this impact is addressed in Impact HAZ-6, in Section 3.9, *Hazards and Hazardous Materials*).

The objective of VMT thresholds is to meet statewide GHG emissions targets through VMT reductions from the transportation sector. Both CARB and OPR acknowledge that MPOs are tasked with meeting SB 375 GHG emissions targets, and while CARB has determined that meeting the current SB 375 GHG emission reduction targets will not be sufficient to attain state climate goals, more can be done at the project level. At the project level, lead agencies may consider recommended thresholds of significance and determine which ones are appropriate and feasible for their jurisdiction and/or a particular project, or apply alternative thresholds, consistent with CEQA Guidelines Section 15064.3 which states "A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence." See also Section 3.8, *Greenhouse Gases*, of this 2024 PEIR for additional discussion on the connection between GHG and VMT and SCAG's ability to meet SB 375 and consistency with SB 743 guidance as well as statewide climate goals.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan has policies and strategies that aim to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of the Plan, including policies and strategies as well as transportation projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. As such, the CEQA significance determination for Plan's transportation impacts is based on a comparison between future (2050) with the Plan and the 2019 actual baseline (e.g., existing conditions). The comparison of transportation impacts in the future with the Plan as compared to future with no Plan is included in Chapter 4, *Alternatives*, of this PEIR. The analysis of transportation considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

Transportation-related impacts were evaluated in accordance with Appendix G of the CEQA Guidelines. Transportation-related impacts within the SCAG region were evaluated at a programmatic level of detail, in relation to the General Plans of the six counties and the 191 cities within the SCAG region review of general information characterizing transportation and review of published and unpublished literature germane to the SCAG region.

The methodology for determining the significance of impacts on transportation impacts compares current regional transportation conditions to expected future 2050 conditions with the Plan, as allowed by CEQA Guidelines. SCAG utilized the Regional Travel Demand Model (RTDM) to compare the existing conditions to the Plan's 2050 condition. SCAG's role as the MPO for the region and as the preparer of the Plan is to evaluate the regional network. For CEQA purposes, and pursuant to SB 743, the most appropriate metric for such regional analysis is VMT which measures overall network efficiency, rather than LOS which is generally used to evaluate local (i.e., intersection level) impacts. Total daily VMT is used as a measure of overall utilization of roadways which relates to vehicle emissions, traffic congestion, and the effectiveness of land use patterns and alternate mode options in reducing the need for vehicular travel. Vehicle hours of delay (VHD) measures the congestion level of the roadway. Other measures such as transportation system accident rates measure the effect of other modal choices from vehicles to active transportation. Performance measures for the Plan's horizon year 2050 were

compared to the existing regional conditions for each significance criterion to determine the significance of impacts. The 2050 transportation model output provides a regional and cumulative level of analysis for the transportation impacts of the Plan.

As discussed in Chapter 2 *Project Description*, and Chapter 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies, some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan. See CEQA Guidelines Section 15126.4(a)(1)(B). As discussed in Chapter 3.0 *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT TRA-1 Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Significant and Unavoidable Impact – Mitigation Required

The SCAG region provides a large and growing amount of transit service. In Fiscal Year 2020-2021, the region supplied 15 million revenue hours of service, transit/rail riders traveled more than one billion passenger miles (or about 4.12 miles per passenger), a 63-percent decrease from the more than three billion passenger miles in 2019 (SCAG 2023b). As noted above in Environmental Setting, although transit/rail ridership has improved over the past several years, it is still significantly less than it was prior to the COVID-19 pandemic and its past ridership peak around 2007 before the Great Recession. Prior to the pandemic, there were 600 million annual transit/rail boardings. Overall, the region's bus ridership levels are currently 23 percent below what they were pre-pandemic (SCAG 2023b). This trend impacts agencies' ability to continue to provide these levels of service, as declining fare revenues will eventually lead to budgetary challenges.

The Plan calls for a substantial expansion of transit facilities and service over the next 25 years. While these projects would provide the SCAG region with a more comprehensive public transportation system, operational improvements and new transit programs and policies would also contribute to attracting more trips to transit and away from single-occupant vehicle travel. Expanding HOV and express lane networks calls for the development of an extensive express bus point-to-point network. In addition, transit oriented and land use strategies call for increasing the frequency and quality of fixed-route bus service by virtue of adding new bus rapid transit service, limited-stop service, increased frequencies along targeted corridors, and the introduction of local community circulators to provide residents of smart growth developments with the option of taking transit over using a car to make short, local trips.

Since the adoption of Connect SoCal 2020, many of Metro's Measure R projects have made significant construction progress, including the Crenshaw/LAX Transit Corridor (K Line), the Regional Connector, the Purple Line (D Line) Extension to the Westside (Sections 1, 2, and 3), and the Foothill Extension (L Line) from Glendora to Montclair. Additionally, work concluded on a partial segment of the K Line, which includes seven of nine total stations; this partial segment of the K Line entered revenue service in 2022 (Metro 2023).

On the November 2016 ballot, Los Angeles County voters approved Measure M, a fourth Local Option Sales Tax to fund both capital and operations within Los Angeles County. The tax was part of a forty-one-year, \$120 billion plan to expand upon Measure R, adding new transit projects and expediting others previously approved under Measure R. The plan, known as Measure M, would be paid for by an additional permanent half-cent sales tax increase. Measure M passed with 70.15 percent of the vote, clearing the two-thirds majority required. The combined expenditure plan provides \$432.29 billion for transit operations, \$41.86 billion for capital construction of corridor improvements and facilities and \$2.39 billion for capital replacement to achieve a state of good repair. Additionally, the expenditure plan programs \$19.13 billion in local return funds, which are often used to fund transit operations (Metro 2016). A map of the 2050 Transit Network is provided in Map 2-12, 2050 Plan Transit Network, in Chapter 2, *Project Description*, of this 2024 PEIR.

Table 3.17-11, Daily Transit Boardings, shows that daily transit boarding in the region would increase over the lifetime of the Plan.

TABLE 3.17-11 Daily Transit Boardings

DAILY TRANSIT BOARDING	EXISTING (2019)	2050 PLAN
Commuter Rail	48,165	130,426
Local Bus	1,194,448	2,254,503
Local Rail	346,169	733,094
Bus Rapid Transit	27,209	85,997
Express Bus	14,446	19,824
HSR	0	10,779
Rapid Bus	174,317	107,054
Transitway	34,052	36,321
Total (Transit)	1,838,807	3,377,998

Source: SCAG Modeling (2023)

Connect SoCal 2024 proposes a variety of active transportation investments to improve conditions for people who walk, bike, and use micro-mobility (see Chapter 2, *Project Description*). Current rates of funding and the speed of implementation will need to be accelerated to complete the proposed projects within the Plan. This will require additional community engagement to build support for changes to roadway networks such as active mobility lanes and other safety improvements. SCAG has identified implementation actions that an agency can pursue toward active transportation goals. These actions will serve as broad direction for the agency to support equity, short and regional trips, safety, and complete streets.

The Plan calls for a substantial expansion of transit facilities and service to attract trips to transit and away from single-occupancy vehicle travel. Transit-oriented land use strategies would increase the frequency and quality of fixed-route bus service by adding new rapid service, express service, and community circulators for short trips.

Each RTP/SCS cycle, SCAG has expanded and improved its analysis of active transportation planning processes to better integrate people walking and bicycling into the regional transportation network. The Plan would increase the mode share of transit and active transportation in the SCAG region, from 12.4 percent in 2019 to 16.8 percent in 2050 (**Table 3.17-12, Percentage of Mode Share on Transit and Active Transportation**).

TABLE 3.17-12 Percentage of Mode Share on Transit and Active Transportation

MODE SHARE	2019	2050 PLAN
Walk	8.7%	9.4%
Bike	1.2%	2.9%
Transit	2.4%	4.5%
Total	12.4%	16.8%

Source: SCAG 2023c

Since 2020, county transportation commissions and councils of governments within SCAG’s region have also completed notable active transportation planning initiatives including countywide pedestrian plans, multi-jurisdictional bicycle master plans, comprehensive Safe Routes to School (SRTS) plans, active transportation plans, and first-last mile policies and plans. The SCAG region benefits from having robust Safe Routes efforts across most of the counties and numerous cities, with 49 percent having completed Safe Routes to School Plans and another five percent reporting that their SRTS Plans are in progress (SCAG 2023b). In addition, nearly half of the cities in the SCAG region have developed, or are in the process of developing, pedestrian master plans that aim to improve the existing pedestrian networks and fill in gaps to get more people safely walking (SCAG 2023b).

SCAG’s analytic approach for its active transportation plans included a combination of outreach processes and data gathering efforts, including but not limited to SCAG’s local input process with cities, county agencies, councils of governments, working groups, and technical advisory committees that review active transportation projects and programs, input collected through the scenario development process from agency partners, health departments, community based organizations and members of the public, input gathered through SCAG’s Go Human events.

As described within the Environmental Setting, there are numerous plans and policies that address the circulation system. At the transit agency level, it is unlikely that conflicts would occur, as SCAG incorporates local transit plans into the RTP through regular amendments to the Plan. With regard to bicycle and pedestrian plans, as described above, SCAG has done extensive outreach and coordination across numerous groups to capture local input. Further, SCAG regularly assists local jurisdiction in planning for these types of projects through grant funding.

SCAG and the six Counties have worked towards the development of a metropolitan-wide strategy for new and existing transportation facilities eligible for funding under Title 23 U.S.C, and Title 49 U.S.C., to optimize the transportation system for safety and improve effectiveness. This strategy includes the development of a coherent and integrated regional goods movement system. Strategies include a Regional Freight Corridor System which would create a system of truck-only lanes for major freeway systems that are affected by haul trucks used for the goods movement; a Truck Bottleneck Relief Strategy which would mitigate top-priority truck bottlenecks; a Rail Strategy which would allow shippers the ability to move over long distances at lower costs, utilizing efficient rail strategies to include expansion and modernization of intermodal facilities; a Good Movement Environmental Strategy which would focus on a two-pronged approach for achieving an efficient, safe and economically sound freight system that reduces environmental impacts.

In order to meet federal certification requirements, SCAG and county transportation commissions (CTCs), specifically LA County Metro, OCTA, RCTC, SANBAG, and VCTC are developing means to monitor and maintain the existing roadway infrastructure through demand reduction techniques, land-use and operation management strategies, and strategic capacity enhancement strategies. Additional strategies include supporting land use

policies aimed to focus growth in PDAs with enhanced opportunities for Southern California residents to access destinations without the use of an automobile. As described in Chapter 2, *Project Description*, SCAG worked with CTCs through the Project List solicitation process to reflect the Plan's transportation investments. The Plan's transportation projects and programs were sourced from the CTCs.

SCAG has also worked with local CTCs to support strategies for diversifying mode choices by encouraging public transit use and non-motorized forms of commute such as walking and other active transportation in the Plan. While the actual benefits of these alternative and active transportation modes are modest, SCAG transportation modeling indicates a potential for notable overall improvement in the percentage of peak period work trips completed within 45 minutes by personal vehicle with implementation of the Plan, with a slight decrease in the percentage of peak hour trips completed within 45 minutes by transit. To determine these findings, PM peak period work trips were used to assess impacts to work commute as PM trips are prone to the greatest amount of vehicle delay.

Lastly, the Plan includes land use strategies to focus development in PDAs such as TPAs, Neighborhood Mobility Areas (NMAs), and Livable Corridors with convenient access to housing options, employment opportunities, and goods and services, as well as within High Quality Transit Corridors (HQTCs). The strategies focus development in transit-rich areas allow transit and land use to work together. CARB's 2020 Mobile Source Strategy recognizes that coordinated regional planning can improve California's land use patterns and transportation policy in a way that reduces transportation-related emissions by reducing growth in VMT. The SCS is one mechanism to pursue these reductions. The Plan includes policies to incentivize land use changes and promote communities that are designed to foster use of ZEVs and Near-Zero Emission Vehicles (NZEVs) and new modes of personal mobility consistent with the Mobile Source Strategy (CARB 2021).

As discussed above, implementation of the Plan would result in the construction of new and expanded transit, active transportation, and other transportation facilities in the region, and would also focus future development in proximity to various transportation options. While the Plan would generally result in an overall increase in accessibility to a wider variety of transportation choices and services at a regional level, it is possible that some individual transportation and land use development projects constructed as a result of the Plan would not be consistent with applicable plans, policies, and programs that affect the circulation system. Therefore, it is conservatively assumed that Plan implementation could result in conflicts with programs, plans, ordinances, or policies addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Therefore, this impact is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM LU-3 and SMM-POP-2.

PROJECT-LEVEL MITIGATION MEASURES

PMM-TRA-1 In accordance with provisions of sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to transportation impacts. Such measures may include the following or other comparable measures identified by the lead agency:

- For future land use development projects, lead agencies shall encourage the incorporation of transit, bicycle, pedestrian, and micro-mobility facilities, features, and services in project designs, as well as encourage developers to provide information regarding the availability of these facilities and services to residents, tenants, and owners in order to facilitate increased access to and utilization of transit and active transportation services and facilities.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2 *Project Description*, and Chapter 3.0, *Introduction to Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to conflict with programs, plans, ordinances, or policies addressing the circulation system, due to the regional nature of the analysis, unknown site conditions and project specific-details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT TRA-2 **Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b).**

Significant and Unavoidable Impact – Mitigation Required

CEQA Guidelines Section 15064.3(b) is intended to be applied at the project level; therefore, the myriad transportation and urban land use development projects that will occur under the Plan will be required to address the specific requirements, as follows:

(b) Criteria for Analyzing Transportation Impacts.

- (1) Land Use Projects. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.*
- (2) Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, a lead agency may tier from that analysis as provided in Section 15152.*
- (3) Qualitative Analysis. If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.*

- (4) *Methodology. A lead agency has discretion to choose the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled, and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.*

Connect SoCal 2024 is based on a regional employment and population forecast and accommodates this growth through the implementation of transportation projects and land use strategies. The Plan includes strategies to accommodate projected growth in a manner that increases transportation system efficiency and reduces VMT. Metrics such as VMT, VHT, and VHD have been used throughout the history of the Plan as a measure of the performance of the region's transportation system. SCAG has traditionally used VMT to assess transportation impacts as it is a more useful tool to evaluate impacts at the regional-scale than delay-based metrics for roadways such as LOS. In addition, the regional models used by SCAG do not include the LOS metric.

Traditionally, project-level analysis of transportation impacts focused on local-level congestion and delay-based impacts (e.g., intersection and roadway LOS). The analysis of the Plan is at the regional level and evaluates total regional VMT (including consideration of per capita data) and overall efficiency of the network.

CEQA Guidelines section 15064.3(b) provides that local jurisdictions are responsible for determining the most appropriate methodology for their jurisdiction or project. As discussed above, historically, methodologies and thresholds have been identified by OPR and CARB, as well as local jurisdictions. SCAG discusses these thresholds in the Regulatory Framework discussion above.

As noted above in the Regulatory Framework discussion, the CARB 2022 Scoping Plan recommends a per capita reduction of at least 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045 in light-duty VMT to reduce overall transportation energy demand and meet the state's climate, air quality, and equity goals. However, the 2022 Scoping Plan also acknowledges that these targets are not regulatory requirements but that they should inform future planning processes. Moreover, these targets are identified as applicable to statewide VMT, and it is likely that VMT targets for the SCAG region would differ from these statewide targets. As part of the target setting for the next SB 375 GHG reduction targets (anticipated for 2026), the 2022 Scoping Plan data and VMT reduction targets would likely be taken into account. How the 2022 Scoping Plan VMT reduction targets will translate into GHG reduction targets for SCAG and how such GHG reduction targets and shared responsibilities will be distributed across the various State's MPOs has not yet been identified and likely will not be identified until 2026. Nevertheless, for informational purposes, the per capita VMT targets from the 2022 Scoping Plan are discussed as reference points for assessing VMT performance at the regional level.

As shown in **Table 3.17-13, VMT 2019 and 2050 By County**, per capita VMT in 2050 would decrease when compared to current per capita VMT. However, total VMT for all vehicles is expected to grow from 444 million in 2019 to 450 million in 2050. This change constitutes a 1.4-percent increase and includes light, medium, and heavy-duty vehicle VMT in all six counties compared to existing conditions. However, the Plan is expected to reduce VMT per capita in most of the SCAG region encompassing five counties: Los Angeles, Orange, Riverside, San Bernardino, and Ventura County, and would increase VMT per capita only in Imperial County in 2050 (Table 3.17-15). Note that a detailed discussion of VMT under "No Project" conditions in 2050 (i.e., 2050 VMT without implementation of the Plan) is provided in Chapter 4, *Alternatives*, of this 2024 PEIR.

TABLE 3.17-13 VMT 2019 and 2050 By County

COUNTY	IN THOUSANDS ¹			
	2019		2050 PLAN	
	LIGHT-MEDIUM DUTY VEHICLES	ALL VEHICLES	LIGHT-MEDIUM DUTY VEHICLES	ALL VEHICLES
Imperial	6,000	7,000	7,000	9,000
Los Angeles	207,000	220,000	190,000	208,000
Orange	72,000	77,000	70,000	75,000
Riverside	54,000	59,000	63,000	71,000
San Bernardino	57,000	63,000	62,000	71,000
Ventura	18,000	19,000	16,000	17,000
SCAG Region	414,000	444,000	407,000	450,000

Source: SCAG modeling (2023)

Table Note:

1. Numbers are rounded to nearest thousand.

Studies have found that by adding roadway capacity in congested areas, network-wide VMT is increased by a nearly equivalent proportion within a few years, which results in reducing the initial congestion relief (National Center for Sustainable Transportation 2022). This increase in VMT is called “induced travel.”

Emerging technologies vary widely when it comes to their effect on VMT, and therefore GHG emissions. Some of these technologies, such as alternative fuel vehicles, micro-mobility, bikesharing, and microtransit, have a mitigating influence on GHG emissions. Others, such as ride-hailing and automated vehicles, are expected to increase VMT and GHG emissions if their business models do not adapt.

Table 3.17-14, Population and Daily VMT (2019 and 2050), presents information related to population, daily VMT, and VMT per capita for the years 2019 and 2050.

TABLE 3.17-14 Population and VMT (2019 and 2050)

CATEGORY	2019	2050	2050 VS 2019
Total Population	18,827,000	20,882,000	10.9%
Light Duty Vehicle VMT	413,969,000	407,065,000	-1.67%
Total VMT	444,240,000	450,428,000	1.39%
VMT Per Capita Light Duty Vehicles	21.99	19.49	-11.4%
VMT Per Capita All Vehicles	23.60	21.57	-8.6%

Source: SCAG modeling (2023)

By 2050, per capita public transit boardings are projected to increase by approximately 80 percent, and transit’s mode share will also rise. The share of trips by bicycle and walking will rise and such active modes as well as transit will represent 16.8 percent of all trips. The share of trips by single-occupancy vehicles will fall from 68.7 percent to 62.3 percent of home-to-work trips for the region. The combined effect of these transportation mode shifts, and the SCS

land use pattern will result in a reduction in VMT per capita by 2050. Overall, VMT per capita is forecast to decline by approximately 11.4 percent for all vehicles and 8.6 percent for light, medium duty vehicles between 2019 and 2050.

As shown in **Table 3.17-15-15, VMT Per Capita by County (2019 and 2050)**, Los Angeles County will experience the largest decline in per capita VMT for both all vehicles and light, medium duty vehicles in 2050, while Imperial County will experience the only increase for both all vehicles and light, medium duty vehicles. In addition, as shown in **Table 3.17-16, Total Daily Vehicle Hours of Delay**, total delay in the region will increase in Imperial and Riverside counties. Los Angeles, Orange, San Bernardino, and Ventura counties would all experience decreases in delay.

TABLE 3.17-15 VMT Per Capita by County (2019 and 2050)

COUNTY	TOTAL VMT PER CAPITA			
	LIGHT/MEDIUM-DUTY VEHICLES		ALL VEHICLES	
	2019	2050	2019	2050
Imperial	33.03	34.29	38.53	41.56
Los Angeles	20.61	17.63	21.93	19.29
Orange	22.65	20.29	23.97	21.81
Riverside	22.67	21.02	24.77	23.79
San Bernardino	26.25	23.54	28.88	26.99
Ventura	20.63	18.35	21.94	19.97
Regional Average	21.99	19.49	23.60	21.57

Source: SCAG modeling (2023); SCAG 2023c

TABLE 3.17-16 Total Daily Vehicle Hours of Delay (2019 and 2050)

COUNTY	2019	2050 PLAN
Imperial	6,593	10,087
Los Angeles	1,482,991	1,126,307
Orange	356,500	221,469
Riverside	139,772	151,841
San Bernardino	166,077	131,054
Ventura	62,476	32,196
Regional	2,214,408	1,672,954

Source: SCAG modeling (2023)

The forecast VMT per-capita decline between 2019 and 2050 indicates that transportation projects, as well as anticipated growth patterns under the Plan, if implemented, would effectively work together to improve system efficiency and minimize increases in total VMT and decrease per capita VMT. This is because the Plan includes a more compact forecasted regional development pattern providing growth in areas with greater transportation options. Compact land uses are more efficiently served by transit, support potentially higher rates of walking and

biking, and generate less vehicle travel. The Plan also places an emphasis on transit service and complete streets near transit, pedestrian-oriented, and bicycle-supportive land uses with higher density and a mix of uses most likely to generate a mix of travel modes. Road and highway projects concentrate on alleviating major bottlenecks and congestion points, while other programs and transportation systems management strategies, including technology and demand management programs, allow for greater optimization of existing transportation infrastructure. Other factors affecting future VMT are aging of the population and forecasted increases in auto operating costs.

As discussed above, the Plan is projected to increase total VMT in the SCAG region between 2019 and 2050 by approximately 1.39 percent, constituting a significant impact. However, the Plan is projected to decrease total daily hours of delay from approximately 2.21 million to 1.67 million hours between 2019 and 2050 (Table 3.17-16).

As discussed in the Transportation Finance Technical Report, Connect SoCal 2024 commits billions of dollars for various highway improvements, including mixed-flow and interchange improvements, HOV/Express lanes, and transportation system management. For example, in Orange County, an approximately \$2 billion project would add one mixed-flow lane in each direction, convert an HOV lane to HOT lane, and add an additional HOT lane on I-405. In addition, numerous projects are scheduled for completion that would result in an Express Lane on I-405 from its northern terminus to the Los Angeles/Orange County border (see the Project List Technical Report in the Plan for a complete list of projects).

Policies that aim to charge drivers user fees to cover the costs of services they use can be effective in lowering emission and delays from increased VMTs. For example, Connect SoCal 2024 includes 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. SCAG assumed congestion pricing during peak periods along with increases in parking pricing at major job centers in Los Angeles. The implementation of user-fees and pricing strategies can be structured to increase equity and mobility while reducing environmental impacts.

Table 3.17-17, Percent of PM Work Trips Completed within 45 Minutes, shows percent of work trips completed within 45 minutes. As shown in this table, by 2050 there would be an increase of PM work trips by single-occupancy vehicles that take 45 minutes or less (from 75.63 percent to 84.41 percent). HOV PM trips within 45 minutes would increase from 77.35 percent to 84.47 percent and transit trips completed within 45 minutes would decline from 28.39 to 27.64 percent. Despite the decline for transit trips, this indicates that the Plan's strategies are improving overall congestion.

TABLE 3.17-17 Percent of PM Work Trips Completed within 45 Minutes

COUNTY	2019	2050 PLAN
Single Occupant Vehicles		
Imperial	88.70%	84.89%
Los Angeles	74.23%	83.63%
Orange	85.85%	90.34%
Riverside	70.55%	82.88%
San Bernardino	67.86%	80.01%
Ventura	77.38%	85.28%
Region	75.63%	84.41%
High Occupancy Vehicles		
Imperial	89.87%	81.13%
Los Angeles	76.29%	83.21%
Orange	86.18%	90.19%
Riverside	71.42%	83.27%
San Bernardino	72.32%	81.62%
Ventura	80.59%	87.12%
Region	77.35%	84.47%
Transit		
Imperial	50.00%	22.67%
Los Angeles	28.97%	28.80%
Orange	21.56%	21.51%
Riverside	22.83%	17.81%
San Bernardino	21.64%	18.37%
Ventura	26.38%	17.60%
Region	28.39%	27.64%

Source: SCAG Modeling (2023)

In general, many projects located within PDAs are anticipated to have less than significant transportation impacts as they would be consistent with CEQA Guidelines Section 15064.3(b)1 (i.e., generally within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corrido) or other location where VMT is minimized. For those projects located outside of PDAs, transportation impacts would be determined based on each project’s ability to reduce VMT.

For transportation projects under the Plan, those projects that reduce VMT, such as most transit and bike projects, the assumption is impacts will be less than significant. However, consistency with the RTP/SCS does not necessarily lead to a less than significant impact. Further, OPR’s technical guidance on SB 743 states “building new roadways, adding roadway capacity in congested areas, or adding roadway capacity to areas where congestion is expected in the future, typically induces additional vehicle travel. For the types of projects previously indicated as likely to

lead to additional vehicle travel, an estimate should be made of the change in vehicle travel resulting from the project.”

Ultimately, the determination of VMT impacts for projects implemented under the Plan will be made at the project level. As discussed above and elsewhere in this 2024 PEIR (see Section 3.8, *Greenhouse Gases*), lead agencies have the discretion to determine the appropriate methodology and level of analysis, including establishing appropriate reduction targets. As described above, there are multiple potential VMT targets. CARB’s 2022 Scoping Plan is the most recent and recommends a per capita reduction of 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045 in light-duty VMT. As noted above, these targets are not regulatory requirements; CARB is not setting regulatory limits on VMT in the 2022 Scoping Plan. The Scoping Plan also indicates that although ZEVs and NZEVs will help to reduce emissions, 30 percent of vehicles on the road in 2045 are still expected to burn fossil fuels, and thus infill development is still an important way to achieve the stated reduction targets.

In sum, the region is making progress in per capita VMT reductions and is also making significant strides in the development of new initiatives, projects, policies, and strategies in the Plan to support, and align with AB 32 and SB 32 (as well as associated SB 743 guidance) GHG reduction goals. While the Plan achieves the SB 375 GHG reduction targets, given the "gap" (as discussed above and in Section 3.8, *Greenhouse Gases*) between the current MPO emissions reductions targets and the emissions/VMT reductions necessary to meet the state’s climate action goals (per the 2017 Scoping Plan), additional progress by every sector of the economy in the state is needed. That includes the transportation planning by MPOs. As one of the largest four MPOs in the state, SCAG has a unique perspective to offer in the next round of SB 375 GHG reduction target setting and will lead by example in working together with CARB and all other involved agencies in setting ambitious and yet appropriate, achievable, and equitable targets.

Despite the benefits shown by implementing the Plan, the Plan would result in an increase in total regional VMT and may not support achievement of the state’s VMT reduction goals which could be inconsistent with CEQA Guidelines Section 15064.3(b). Therefore, this impact is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See **SMM-POP-2**.

SMM-TRA-1 SCAG shall facilitate the reduction of vehicle miles traveled (VMT) and impacts to circulation and access through mobility improvements and by encouraging transit/rail and active transportation use via stakeholder forums (e.g., quarterly Safe and Active Streets Working Group meetings, bimonthly Regional Transit Technical Advisory Committee meetings, monthly Active Transportation Program check-ins with County Transportation Commissions). These objectives will also be facilitated through the hosting of regional forums for policy makers, County Transportation Commissions, planning agencies, local jurisdictions, and state partners to promote information sharing.

SMM-TRA-2 SCAG shall continue to support development of local and regional SB 743 implementation programs.

SMM-TRA-3 SCAG shall continue to develop and support its program for reducing average daily number of SCAG employees' commute vehicle trips.

PROJECT-LEVEL MITIGATION MEASURES

PMM-TRA-2 In accordance with provisions of sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects related to transportation impacts. Such measures may include the following or other comparable measures identified by the lead agency:

- Transportation demand management (TDM) strategies should be incorporated into individual land use and transportation projects and plans, as part of the planning process. Local jurisdictions should incorporate strategies identified in the Federal Highway Administration's publication: Integrating Demand Management into the Transportation Planning Process: A Desk Reference (August 2012) into the planning process (FHWA 2012). For example, the following strategies may be included to encourage use of transit and non-motorized modes of transportation and reduce vehicle miles traveled on the region's roadways:
 - Include TDM mitigation requirements for new developments;
 - Incorporate supporting infrastructure for non-motorized modes, such as, bike lanes, secure bike parking, sidewalks, and crosswalks;
 - Provide incentives to use alternative modes and reduce driving, such as, universal transit passes, road and parking pricing;
 - Implement parking management programs, such as parking cash-out, priority parking for carpools and vanpools;
 - Develop TDM-specific performance measures to evaluate project-specific and system-wide performance;
 - Incorporate TDM performance measures in the decision-making process for identifying transportation investments;
 - Implement data collection programs for TDM to determine the effectiveness of certain strategies and to measure success over time; and
 - Set aside funding for TDM initiatives.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2 *Project Description and Chapter 3.0 Introduction to Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to conflicts or inconsistencies with CEQA Guidelines Section 15064.3(b), due to the regional nature of the analysis, unknown site conditions and project specific-details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT TRA-3 Substantially increase hazards due to geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Significant and Unavoidable Impact – Mitigation Required

SCAG adopted its 2023 Regional Safety targets in February 2023. SCAG recommends maintaining a long-term Zero Deaths aspirational focus toward regional transportation safety, while adopting evidence-based near-term targets. The modeled safety targets for the SCAG region forecast a 1.7 percent decrease in fatalities, a 3.9 percent increase in serious injuries, and a 4.5 percent increase in non-motorized fatalities and serious injuries in 2023. Connect SoCal 2024 prioritizes ensuring the safety and mobility of the region’s residents, including drivers and passengers, transit riders, pedestrians, and bicyclists. The Plan includes regional planning policies that support safety and security needs related to transportation systems. The Plan also aims to address actionable strategies in which SCAG can support local jurisdictions.

SCAG completed a comprehensive update of its multi-county Regional Intelligent Transportation System (ITS) Architecture in November 2019 (SCAG 2019). The Regional ITS makes use of advanced detection, communications, and computing technology to improve transportation safety. ITS allows surveillance technologies to collect data about the status of highways, traffic signals, transit vehicles, and rideshare vehicles to improve the efficiency of the system. In addition to this framework, SCAG supports the efforts of local jurisdictions to improve transportation safety through a safe systems approach which utilizes systems thinking to design transportation systems with no deaths or serious injuries. A safe systems approach includes programs such as Vision Zero, which aims to eliminate traffic fatalities and severe injuries by promoting roadway design and policy that recognizes human error and prevents severe injury incidents. Connect SoCal 2024 land use strategies aim to focus growth in PDAs, which are generally located away from high-speed transportation corridors or other facilities where potential hazards due to design features tend to be high (e.g., desert/rural highways, mountain roads with steep inclines and limited sight distances, etc.). Moreover, development in PDAs would generally increase the number of SCAG region residents in proximity to transit and in areas with good opportunities for active transportation, making it imperative to design facilities with bike racks, improved sidewalks with shade, bikeways, and welcoming transit stations to promote an active streetscape.

Bicycling has continued to become a more popular activity across the SCAG region. Fatalities and serious injuries between motor vehicles and bicycles have steadily increased throughout the years and remain high. SCAG recommends strategies for local jurisdictions to improve safety for bicyclists, including connecting bicycle facilities, implementing active transportation plans, complete streets policies and intersection control for bicyclists.

On average, approximately 1,600 people are killed, and 7 and 140,000 are injured (with more than 7,000 seriously injured) in traffic collisions in the region annually. While traffic collisions occur in communities all over the region, 90 percent occur in urban areas, and about 65 percent of collision-related fatalities happen on local roads as compared to 15 percent on arterials and 20 percent on highways.

To examine where fatalities and serious injuries are occurring across the region, SCAG developed a regional High Injury Network (HIN). The HIN identifies roadways throughout the region where high concentrations of collisions are occurring. SCAG’s regional HIN shows that 65 percent of all fatal and serious injuries occurred on just 5.5 percent of the regional transportation network. Through the HIN development, it became clear that transportation safety is an equity issue as 69.5 percent of HIN roadway miles are within Priority Equity Communities (71.9 percent and 80.1 percent for bicyclist and pedestrian HINs, respectively).

The Plan includes strategies to encourage a complete streets approach to roadway improvements which would include design of facilities to enhance the safety of riders, bicyclists, and pedestrians and minimize hazards. These enhancements would also reduce hazards for drivers. Comprehensive road education, safe pedestrian routes to schools, and other safety campaigns would also occur.

In accordance with the provisions governing hazard designs from the Southern California Regional ITS, implementation of the Plan would not be expected to result in an overall increase in hazards due to geometric design features or increase conflicts between incompatible uses. However, given the size of the region, number of transportation and urban land use projects to be developed through the 2050 Plan horizon, wide range of safety-related conditions, specific nature of potential land use incompatibilities, and variability in application of appropriate design measures affecting safety hazards for vehicles, bicycles, and pedestrians in the region, it is conservatively concluded that Plan implementation could create hazards due to hazardous design features or incompatible uses. Therefore, this impact is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-GEN-1.

PROJECT-LEVEL MITIGATION MEASURE

PMM-TRA-3 Prepare a sight distance analysis as needed for locations where sight lines could be impeded. The sight distance analysis to be prepared according to the jurisdiction's applicable Municipal Code requirements and the Caltrans Highway Design Manual (HCM) standards and guidelines, and should recommend safety improvements as appropriate such as limited use areas (e.g., low-height landscaping), on-street parking restrictions (e.g., red curb), and any turning restrictions (e.g., right-in/right-out).

LEVEL OF SIGNIFICANCE AFTER MITIGATION

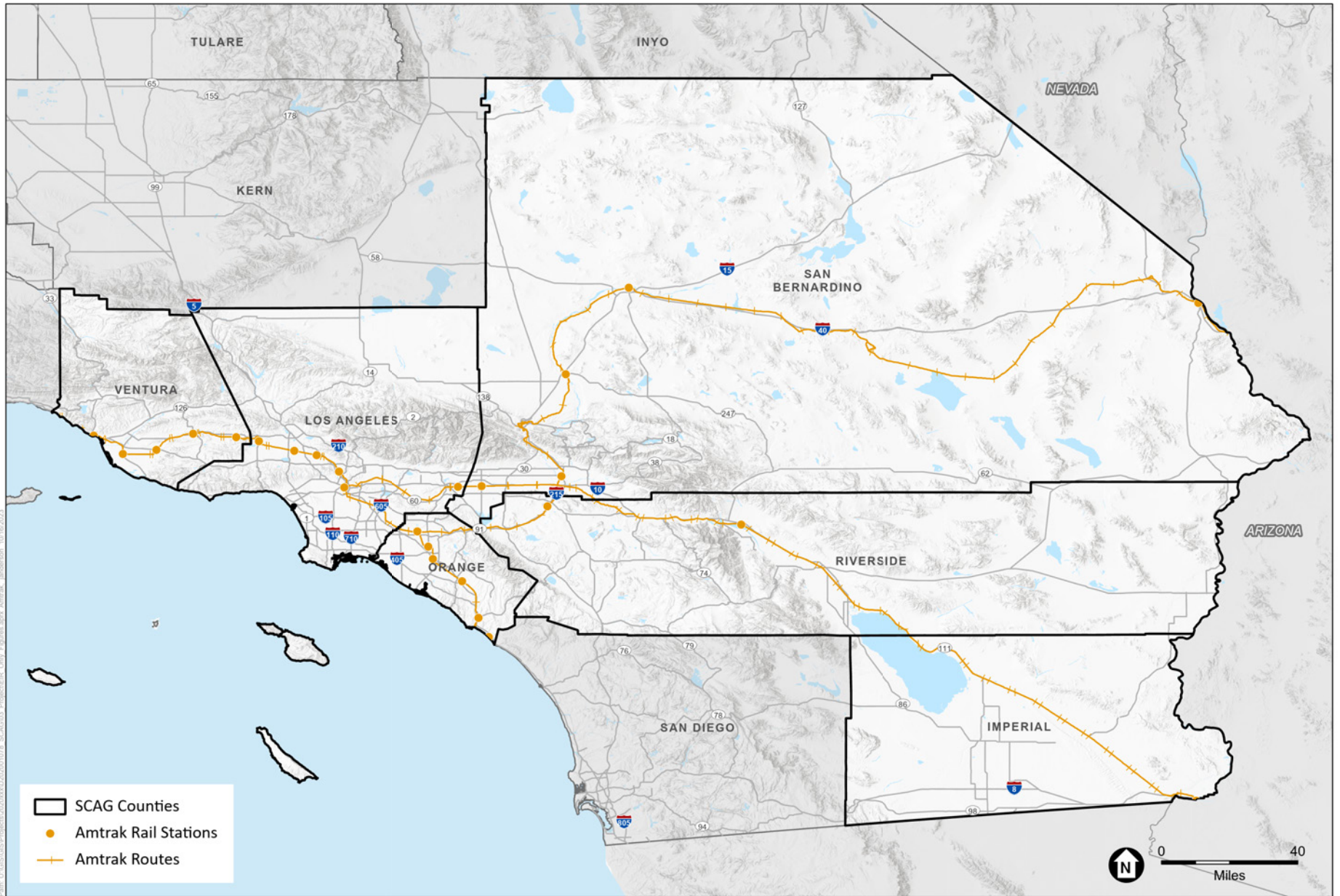
As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2 *Project Description and Chapter 3.0 Introduction to Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to hazardous design features or incompatible uses, due to the regional nature of the analysis, unknown site conditions and project specific-details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT TRA-4 Result in inadequate emergency access.

As discussed in Section 3.0, *Introduction to the Analysis*, due to the interrelationship of the threshold topic areas, Impacts TRA-4, WF-1, and HAZ-6 are addressed together in Section 3.9, *Hazards and Hazardous Materials*, of this 2024 PEIR.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to transportation, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

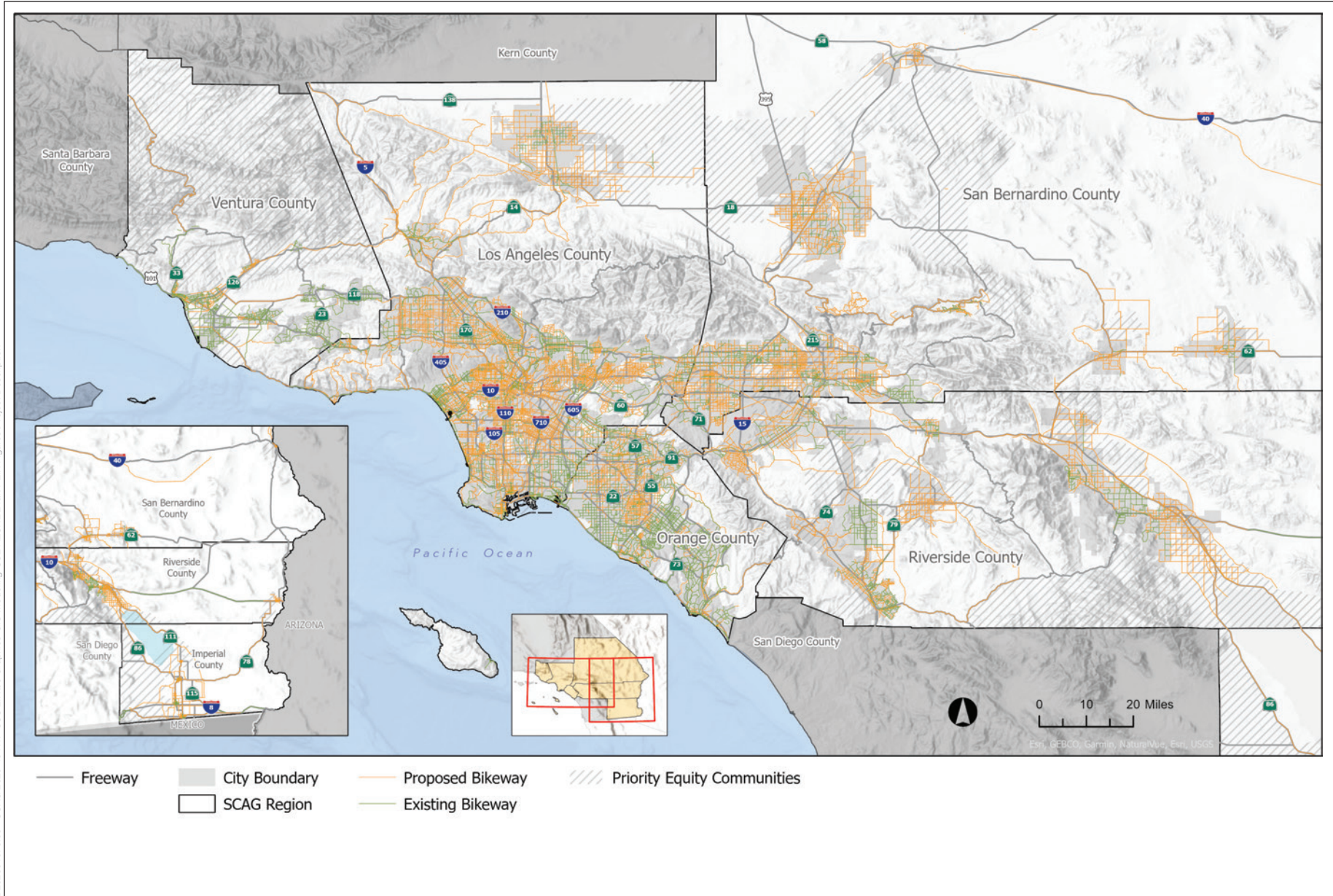


SOURCE: NTAD, 2019

Connect SoCal 2024 PEIR

Map 3.17-1
Amtrak Railways





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SOURCE: SCAG, 2022

Connect SoCal 2024 PEIR

Map 3.17-2
Existing (2019) and Proposed Regional Bikeways (2050)



3.17.4 SOURCES

- Access Services. Agency. https://accessla.org/about_us/overview.html. Accessed February 10, 2023.
- Amtrak. 2023. *Pacific Surfliner*. <https://www.amtrak.com/routes/pacific-surfliner-train.html>. Accessed May 8, 2023.
- Assembly Bill No. 1358, Chapter 657. September 30, 2008
- Association of American Railroads. 2021. U.S. Freight Railroad Industry Snapshot: California. <https://www.aar.org/wp-content/uploads/2021/02/AAR-California-State-Fact-Sheet.pdf>.
- California Air Resources Board (CARB). 2018a. *2018 Progress Report*. November. https://ww2.arb.ca.gov/sites/default/files/2018-11/Final2018Report_SB150_112618_02_Report.pdf.
- CARB. 2022. *2022 Progress Report*. <https://ww2.arb.ca.gov/sites/default/files/2023-05/2022-SB150-MainReport-FINAL-ADA.pdf>.
- CARB. 2022. *2022 Progress Report Appendix A*. <https://ww2.arb.ca.gov/sites/default/files/2023-05/2022-SB150-AppendixA-FINAL-ADA.pdf>.
- CARB. 2018b. *Updated Final Staff Report, Proposed Update to the SB 375 Greenhouse Gas Reduction Targets*. https://ww2.arb.ca.gov/sites/default/files/2020-06/SB375_Updated_Final_Target_Staff_Report_2018.pdf.
- CARB. 2019. CARB 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals. https://ww2.arb.ca.gov/sites/default/files/2019-01/2017_sp_vmt_reductions_jan19.pdf.
- CARB. 2021. 2020 Mobile Source Strategy. https://ww2.arb.ca.gov/sites/default/files/2021-12/2020_Mobile_Source_Strategy.pdf.
- CARB. 2022. 2022 Scoping Plan for Achieving Carbon Neutrality, https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf.
- CARB. 2023a. FCAA - Title V Overview. <https://ww2.arb.ca.gov/our-work/programs/federal-clean-air-act-title-v-operating-permits/fcaa-title-v-overview>. Accessed May 8, 2023.
- CARB. 2023b. SB 375 Regional Plan Climate Targets. <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets>. Accessed May 8, 2023.
- California Department of Motor Vehicles (DMV). 2023. DMV Statement On Cruise LLC Suspension. October 24. <https://www.dmv.ca.gov/portal/news-and-media/dmv-statement-on-cruise-llc-suspension/>, accessed October 27, 2023.
- California Department of Transportation (Caltrans). 2013. California Transportation Plan 2040: Fact Sheet. April.
- Caltrans. 2020. Interim Local Development Intergovernmental Review Safety Review Practitioners Guidance, <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-12-22-updated-interim-ldigr-safety-review-guidance-a11y.pdf>.
- Caltrans. 2021a. California-Baja California 2021 Border Master Plan. https://sandagbmpazurestorage.blob.core.windows.net/bmp-docs/2021-BMP_Final_Report_03152021.pdf.
- Caltrans. 2021b. Strategic Plan 2020-2024. <https://dot.ca.gov/-/media/dot-media/programs/risk-strategic-management/documents/sp-2020-16p-web-a11y.pdf>.
- California Fuel Cell Partnership. 2016. 2016 ZEV Action Plan from the State of California. <https://cafcp.org/blog/2016-zev-action-plan-state-california>. Accessed May 9, 2023.

- California Employment Development Department (CA EDD). 2023. *Current Industry Employment and Unemployment Rates for Counties*. January. <https://labormarketinfo.edd.ca.gov/data/industry-employment-and-unemployment-rates-for-counties.html>. Accessed May 8, 2023.
- California Government Code. Title 7, Division 1, Chapter 2.5: Transportation Planning and Programming [65080-65086.5].
- California Government Code. Title 7, Division 1, Chapter 2.6. Congestion Management [65088-65089.10].
- California Natural Resources Agency (CNRA). Final Statement of Reasons for Regulatory Action. [http://resources.ca.gov/ceqa/docs/2018 CEQA Final Statement of%20Reasons 111218.pdf](http://resources.ca.gov/ceqa/docs/2018_CEQA_Final_Statement_of%20Reasons_111218.pdf).
- CNRA. 2012. *Streamlined Review for Infill Projects (SB 226)*. https://files.resources.ca.gov/ceqa/documents_uploaded_during_the_rulemaking_process_for_sb_226.html. Accessed April 18, 2023
- California Office of Traffic Safety. 2023. California Traffic Safety Quick Stats. <https://www.ots.ca.gov/ots-and-traffic-safety/score-card/>. Accessed April 18, 2023.
- California Public Utilities Commission (CPUC). 2023a. CPUC Approves Permits for Cruise and Waymo To Charge Fares for Passenger Service in San Francisco. <https://www.cpuc.ca.gov/news-and-updates/all-news/cpuc-approves-permits-for-cruise-and-waymo-to-charge-fares-for-passenger-service-in-sf-2023>. Accessed October 17, 2023.
- CPUC. 2023b. Autonomous Vehicle Passenger Service Programs. www.cpuc.ca.gov/regulatory-services/licensing/transportation-licensing-and-analysis-branch/autonomous-vehicle-programs, accessed October 17, 2023.
- California Transportation Commission (CTC). 2023. Active Transportation Program (ATP). <https://catc.ca.gov/programs/active-transportation-program>. Accessed May 9, 2023.
- CTC. 2017. 2017 Regional Transportation Plan Guidelines for Metropolitan Planning Organizations. <https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/f0009312-2017rtpguidelinesformpos-a11y.pdf>, accessed May 9, 2023. Coachella Valley Association of Governments. 2017. Active Transportation Plan. https://www.cvag.org/library/pdf_files/trans/Transportation_Documents/CVAG%20ATP%202016-06-20%20rev2017-06-07.pdf.
- California Vehicle Code. Division 11, Chapter 4. Right-of-Way [21800-21809].
- Code of Federal Regulations. Title 23, Chapter 1, Section 450.320.
- Federal Highway Administration (FHWA). Fixing America's Surface Transportation Act. <https://www.fhwa.dot.gov/fastact/>. Accessed May 8, 2023.
- Governor's Interagency Working Group on Zero-Emission Vehicles. 2013. ZEV Action Plan. [http://opr.ca.gov/docs/Governors_Office_ZEV_Action_Plan_\(02-13\).pdf](http://opr.ca.gov/docs/Governors_Office_ZEV_Action_Plan_(02-13).pdf).
- Governor's Interagency Working Group on Zero-Emission Vehicles. 2016. ZEV Action Plan. https://www.ca.gov/archive/gov39/wp-content/uploads/2018/01/2016_ZEV_Action_Plan-1.pdf.
- Governor's Interagency Working Group on Zero-Emission Vehicles. 2018. ZEV Action Plan Priorities Update. <https://business.ca.gov/wp-content/uploads/2019/12/2018-ZEV-Action-Plan-Priorities-Update.pdf>.
- Governor's Office of Business and Economic Development, 2023. Zero-Emission Vehicle Market Development Strategy. <https://business.ca.gov/industries/zero-emission-vehicles/zev-strategy/>. Accessed August 1, 2023.

- Governor's Office of Planning and Research (OPR). 2018a. Current CEQA Guidelines Update. <http://opr.ca.gov/ceqa/updates/guidelines/>. Accessed December 18, 2018.
- OPR. 2018b. *Technical Advisory – On Evaluating Transportation Impacts in CEQA*. https://opr.ca.gov/docs/20180416-743_Technical_Advisory_4.16.18.pdf.
- Imperial County. Imperial County Bicycle Master Plan Update: Final Draft. Prepared by Alta Plannin+Design. https://www.altaprojects.net/files/6413/2579/4308/Imperial_County_BMP_Final_Draft.pdf.
- Imperial County Transportation Commission. 2022. *Regional Active Transportation Plan*. https://www.imperialctc.org/assets/documents/transportation-plans-and-studies/ICTC-ATP_Final-Document_2022.02.28_Reduced-Size.pdf.
- Long Beach Police Department. 2023. Port Police Division. <https://www.longbeach.gov/police/about-the-lbpd/bureaus/support-bureau/port-police-division/>. Accessed May 9, 2023.
- Los Angeles Department of Transportation. 2021. *Transportation Demand Management (TDM) Program Update*. https://planning.lacity.org/odocument/d7e3780b-3155-44a4-98cf-0fd673a6612b/TDM-FactSheet_English.pdf.
- Los Angeles County Department of Public Works. 2012. Bicycle Master Plan. <http://dpw.lacounty.gov/pdd/bike/masterplan.cfm>. Accessed May 9, 2023.
- Los Angeles County Metropolitan Transportation Authority (Metro). 2006. Metro Bicycle Transportation Strategic Plan. http://media.metro.net/board/Items/2006/02_february/20060215P&PItem6%20Atta.pdf.
- Metro. 2016. Measure M. <https://www.metro.net/about/measure-m/>. Accessed May 9, 2023.
- Metro. 2023. Metro Ridership 2019. <http://www.metro.net/news/facts-glance/>. Accessed July 28, 2023.
- Metro. 2020. *NextGen Bus Study*. <https://www.metro.net/about/plans/nextgen-bus-plan/>. Accessed April 21, 2023.
- Metro. 2023. Measure R. <https://www.metro.net/about/measure-r/>. Accessed May 9, 2023.
- Los Angeles Department of City Planning. 2010 Bicycle Plan. http://bike.lacity.org/wp-content/uploads/2015/09/CityofLosAngeles_2010BicyclePlan.pdf.
- Los Angeles Department of City Planning. 2016. Mobility Plan 2035: An Element of the General Plan. https://planning.lacity.org/odocument/523f2a95-9d72-41d7-aba5-1972f84c1d36/Mobility_Plan_2035.pdf.
- Los Angeles Department of City Planning, 2023, *Mobility*. <https://planning.lacity.org/plans-policies/initiatives-policies/mobility#:~:text=The%20Mobility%20Plan%202035%E2%80%94one,on%20safety%2C%20education%2C%20and%20enforcement>. Accessed August 1, 2023.
- National Center for Sustainable Transportation. 2022. Induced Travel Calculator. <https://travelcalculator.ncst.ucdavis.edu/>. Accessed April 21, 2023.
- National Transit Database. 2019. Annual Agency Profile, Region 9 (2019). <https://www.transit.dot.gov/ntd/transit-agency-profiles>. Accessed July 31, 2023,
- Office of Governor Edmund G. Brown Jr. 2012. Executive Order B-16-2012. <https://www.ca.gov/archive/gov39/2012/03/23/news17472/index.html>. Accessed May 9, 2023.
- Office of Governor, Edmund G. Brown Jr. 2015. Executive Order B-32-15. <https://www.ca.gov/archive/gov39/2015/07/17/news19046/index.html>. Accessed May 9, 2023.

- Office of Governor Gavin Newsom. 2023. *Governor Newsom Signs Infrastructure & Budget Legislation to Build More, Faster*. <https://www.gov.ca.gov/2023/07/10/governor-newsom-signs-infrastructure-budget-legislation-to-build-more-faster/>. Accessed August 2, 2023.
- Orange County Transportation Authority (OCTA). 2009. 2009 OCTA Commuter Bikeways Strategic Plan. <http://www.octa.net/pdf/bikeways09.pdf>.
- OCTA. 2012. Addendum 2009 OCTA Commuter Bikeways Strategic Plan. <http://www.octa.net/pdf/2009CommuterBikewaysStrategicPlanAddendum.pdf>.
- Port of Hueneme. 2019. *2019 Dock Talk Year End Review*. <https://www.portofhueneme.org/wp-content/uploads/2019/12/Dock-Talk-Year-End-2019.pdf>.
- Port of Long Beach. 2022. *Port Facts & FAQs*. <https://polb.com/port-info/port-facts-faqs#facts-at-a-glance>. Accessed April 18, 2023.
- Port of Long Beach. 2022. *Container Trade in TEUs*. <https://polb.com/business/port-statistics/#yearly-teus>. Accessed April 18, 2023.
- Port of Long Beach. 2023. *Security Partnerships*. <https://polb.com/port-info/security/#security-partnerships>. Accessed May 8, 2023.
- Port of Los Angeles. 2023. *Latest Monthly Container Counts*. <https://www.portoflosangeles.org/business/statistics/container-statistics>. Accessed April 18, 2023.
- Port of Los Angeles. 2020. *2019 Facts & Figures*. <https://kentico.portoflosangeles.org/getmedia/a43d3038-7713-4ebd-8c6a-dc72195a65f1/2019-facts-figures#:~:text=Worldwide%2C%20the%20Port%20of%20Los,and%20leasing%20of%20port%20property>. Accessed August 2, 2023.
- Port of Los Angeles. 2023. *About the Los Angeles Port Police*. <https://www.portoflosangeles.org/community/los-angeles-port-police>. Accessed May 8, 2023.
- Public Law 114–94. Fixing America’s Surface Transportation Act. December 4, 2015.
- San Bernardino County Transportation Authority. 2018. San Bernardino County Non-Motorized Transportation Plan March 2011 (Revised June 2018). <http://www.gosbcta.com/sbcta/plans-projects/plans/non-motorized-transportation/NMTP-RevJune2018.pdf>.
- Senate Bill No. 64, Chapter 711. October 9, 2015.
- Senate Bill No. 743, Chapter 386. September 27, 2013.
- SoCal511. 2023. Park and Ride Lots. <https://go511.com/parkandride>. Accessed May 8, 2023.
- Southern California Association of Governments (SCAG). 2019. Regional ITS Architecture Update. <https://www.scagitsarchitecture.org/>. Accessed April 21, 2023.
- SCAG. 2020. Connect SoCal 2020 Aviation and Airport Ground Access Technical Report. https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocial_aviation-and-airport-ground-access.pdf?1606001540. Accessed August 8, 2023.
- SCAG. 2021. *2021 Regional Guide*. <https://scag.ca.gov/sites/main/files/file-attachments/scag-2021-regional-guide.pdf>.
- SCAG. 2023a. Connect SoCal 2024 Aviation and Airport Ground Access Technical Report.
- SCAG. 2023b. Connect SoCal 2024 Mobility Technical Report.
- SCAG. 2023c. Connect SoCal 2024 Performance Monitoring Report.

- Southern California Regional Rail Authority. 2019. Quarterly Fact Sheet Q2 2022-2023.
<https://metrolinktrains.com/globalassets/about/agency/facts-and-numbers/quarterly-fact-sheet-q2-fy-2022-2023.pdf>.
- Southern California Regional Rail Authority. 2023. Service Updates. <https://metrolinktrains.com/rider-info/general-info/service-updates/>. Accessed July 31, 2023.
- Streets and Highway Code. Division 1, Chapter 8, Article 3. California Bicycle Transportation Act [890-892].
- United States Code. Title 23, Chapter 1, Section 134. Metropolitan transportation planning.
- Urbanize Los Angeles. 2021. *City Of L.A. To Expand Transportation Demand Management Ordinance*.
<https://la.urbanize.city/post/city-la-expand-transportation-demand-management-ordinance>. Accessed August 2, 2023.
- Western Riverside Council of Governments. 2018. Western Riverside Active Transportation Plan.
<http://www.wrcog.us/DocumentCenter/View/3366/Final-WRCOG-ATP>. Accessed May 9, 2023.

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3.18 TRIBAL CULTURAL RESOURCES

This section of the 2024 PEIR describes the existing conditions related to tribal cultural resources in the SCAG region, sets forth the regulatory framework that addresses tribal cultural resources, and analyzes the significance of potential impacts that could occur from the development of Connect SoCal 2024. In addition, this PEIR provides regional-scale mitigation measures, as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental reviews to reduce identified impacts as appropriate and feasible. See also Section 3.5, *Cultural Resources*, for the discussion of archeological resources and Section 3.7, *Geology and Soils*, for the discussion of paleontological resources.

3.18.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for tribal cultural resources follow:

- **California Historical Resources Information System (CHRIS):** CHRIS consists of the California Office of Historic Preservation (OHP), nine Information Centers (ICs), and the State Historical Resources Commission (SHRC). The OHP administers and coordinates the CHRIS and presents proposed CHRIS policies to the SHRC, which approves these policies in public meetings. The CHRIS Inventory includes the State Historic Resources Inventory maintained by the OHP as defined in California Public Resources Code (PRC) Section 5020.1(p), and the larger number of resource records and research reports managed under contract by the nine ICs.
- **Tribal Cultural Resources:** Pursuant to Assembly Bill (AB) 52, a site feature, place, cultural landscape, sacred place or object, which is of cultural value to a Tribe and is either on or eligible for the California Historic Register or a local historic register, or such a resource that the lead agency, at its discretion, chooses to treat the resource as a Tribal Cultural Resources (see PRC Sections 21074 (a)(1)(A)–(B)). A tribal cultural resource may also include a unique archaeological resource (see PRC Section 21083.2(g)) or a “nonunique archaeological resource” (see PRC Section 21083.2(h), subject to the provisions of PRC Section 21074 (a)) may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).
- **Unique archeological resource:** Pursuant to PRC Section 21083.2, a unique archaeological resource includes artifacts or sites that meet any one or all of the following criteria:
 - It has made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States;
 - It is associated with the lives of persons important to California’s past;
 - It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; and/or
 - It has yielded, or may be likely to yield, information important to the prehistory or history of California.
- **Unique geologic feature:** An important and irreplaceable geological formation. Such features may have scientific and/or cultural values.

There is substantial overlap between archaeological resources and TCRs. Many if not most archaeological resources are TCRs, but not all TCRs are archaeological resources since they can also be site features, places, cultural landscapes, sacred places, or objects that are of cultural value to a Tribe.

EXISTING CONDITIONS

Detailed information regarding the prehistoric occupation is presented in Section 3.5, *Cultural Resources*, of this 2024 PEIR. As noted in Section 3.5, the SCAG region once was the home to at least 11 distinct Native American groups. These include the Cahuilla, Chumash, Gabrielino, Halchidhoma, Kitanemuk, Luiseno, Mohave, Quechan, Serrano, Southern Paiute, Tataviam, and Tipai. The territorial boundaries of the Native Americans who were residing in Southern California at the time of first European contact do not coincide with today's political boundaries. Moreover, many tribal boundaries overlapped and most groups migrated within their general boundaries throughout the years.

Between 1851 and 1852, the United States Army mandated California's tribes to sign 18 treaties renouncing rights to their traditional lands in exchange for reservations. Due to various factors including strong objections by non-native Californians, the treaties were rejected by the U.S. Senate, and the tribes' title to the land was left unresolved. However, a series of executive orders and a congressional act in 1891 led to the creation of small, scattered reservations of varying quality for Indians in Southern California (Miller 2013). The federal government established reservations in Southern California between 1875 and 1891. This includes the Martinez, Fort Yuma, and Colorado River reservations in Imperial County. In Riverside County are Torres, Cabazon, Augustine, Santa Rosa, Ramona, Pechanga, Soboba, Agua Caliente, Mission Creek, and Morongo. The reservations in San Bernardino County are the San Manuel, Chemehuevi, Fort Mojave, Twentynine Palms reservations. No reservations were established in Los Angeles, Ventura, or Orange Counties. It was believed that the local Native American groups in those counties had become extinct (USEPA 2011).

Records searches for the Plan were conducted through the South Coastal Information Center (SCIC) on October 17, 2022, South Central Coastal Information Center (SCCIC) on December 2, 2022, and Eastern Information Center (EIC) on October 18, 2022. As of December 2022, over 112,000 cultural resource locations (including archaeological and historic-architectural/built-environment resources) have been identified in the SCAG region (see Table 3.5-1, Cultural Resources Listed in the California Historical Resources Information System (CHRIS), in Section 3.5, *Cultural Resources*). In order to protect these archaeological sites, and the artifacts contained within their boundaries, from scavenging and looting, their locations are confidential. Under state law, detailed information about these sites, especially their location, is considered confidential.

NATIVE AMERICAN SACRED SITES

Within the SCAG region there are 16 federally recognized tribes (84 Fed. Reg. Section 1200) with lands administered as federal Indian reservations, also known as pueblos, rancherias, missions, villages, communities, etc. (DOI 2023):

- Agua Caliente Band of Cahuilla Indians
- Augustine Band of Mission Indians
- Cabazon Band of Mission Indians
- Cahuilla Band of Indians
- Chemehuevi Indian Tribe
- Colorado River Indian Tribe
- Fort Mojave
- Morongo Band of Mission Indians

- Quechan Tribe of the Fort Yuma Indian Reservation
- Pechanga Band of Luiseño Indians
- Ramona Band of Cahuilla Mission Indians
- San Manuel Band of Mission Indians
- Santa Rosa Band of Cahuilla Indians
- Soboba Band of Luiseno Indians
- Torres-Martinez Desert Cahuilla Indians
- Twenty-Nine Palms Band of Mission Indians

Recognizing that tribal groups may have expertise with their tribal history and practices that others may not, Assembly Bill 52 (AB 52) (as will be discussed in more detail below) requires lead agencies to provide notice to all tribal groups that are traditionally, culturally, and historically affiliated with the geographic area of a proposed project if they have requested such notice. Some of these groups are not federally recognized, have had their federal recognition revoked, or are in the processes of requesting federal recognition. The Native American Heritage Commission (NAHC) maintains the list of tribes that are traditionally and culturally affiliated within a specified geographic area.

Native American sacred sites reflect the evolution of the Southern California landscape, reflecting the rich cultural heritage of Native American cultures that predate and continued beyond European contact. Native American sacred sites may be related to a range of topics, including origins of the universe, the shifting of tectonic plates, and an evolving array of plants and animals that give Southern California its unique features today. Some sites are associated with the migration of humans into the region, where they settled, and how they lived. These sites document the view of Native American cultures of their own history and way of life.

The NAHC is charged with identifying, cataloging, and protecting Native American cultural resources and sacred sites, which is maintained as the SLF. A search of the SLF files through the NAHC for the SCAG region was requested by ESA on October 13, 2022. The NAHC responded to the request on December 8, 2022, and indicated that the results were positive. On December 8, 2022, ESA requested for the NAHC to provide a count of Sacred Lands listings by county within the SCAG region. The NAHC replied on December 28, 2022, indicating that the NAHC is unable to provide counts of Sacred Lands by county (see Appendix G).

TRIBAL CONSULTATION

A formal list of California Native American tribes who are culturally affiliated with the SCAG region was requested from the NAHC by ESA on October 13, 2022. The NAHC responded by providing a list of tribal contacts that are traditionally and culturally affiliated with the SCAG region (see Appendix G).

Pursuant to the requirements of AB 52, SCAG initiated the tribal consultation process on October 27, 2022, within the 14 days of the release of the NOP for the 2024 PEIR (October 17, 2022), by sending tribal consultation initiation letters to the tribes on SCAG's notification list (see Appendix G for a copy of the letter sent to all the tribes). Additional letters were sent on December 14, 2022, and December 20, 2022, upon receipt of the tribal contacts list from the NAHC. In total, SCAG contacted 64 tribal contacts via email, and via certified mail if email addresses were not available or if emails were undelivered. The notification letters included a description of the Plan and SCAG's contact information and requested that tribes interested in consulting respond to SCAG in writing within 30 calendar days of their receipt of the letter. The AB 52 tribal outreach concluded on January 20, 2023, with no requests for consultation.

Following the conclusion of the response period, two tribal contacts, the Rincon Band of Luiseño Indians and the Santa Ynez Band of Chumash Indians, contacted SCAG on January 26, 2023, and January 31, 2023, respectively.

The Rincon Band of Luiseño Indians indicated that they had no comments but requested to be provided with any environmental documents made available for public review. The Santa Ynez Band of Chumash Indians indicated that they were not requesting consultation; however, they asked to be notified on projects pursuant to Section 106 of the National Historic Preservation Act (see Appendix G).

3.18.2 REGULATORY FRAMEWORK

FEDERAL

ANTIQUITIES ACT AND HISTORIC SITES ACT

See detailed discussion of these regulations in Section 3.5, *Cultural Resources*.

NATIONAL REGISTER OF HISTORIC PLACES AND NATIONAL HISTORIC PRESERVATION ACT

See detailed discussion of this regulation in Section 3.5, *Cultural Resources*.

ARCHAEOLOGICAL/HISTORIC PRESERVATION ACT AND ARCHAEOLOGICAL RESOURCES PROTECTION ACT

See detailed discussion of these regulations in Section 3.5, *Cultural Resources*.

THE AMERICAN INDIAN RELIGIOUS FREEDOM ACT AND NATIVE AMERICAN GRAVES PROTECTION/REPATRIATION ACT

See detailed discussion of these regulations in Section 3.5, *Cultural Resources*.

SECRETARY OF THE INTERIOR'S STANDARDS AND GUIDELINES FOR THE TREATMENT OF HISTORIC PROPERTIES

See detailed discussion of this regulation in Section 3.5, *Cultural Resources*.

STATE

OFFICE OF HISTORIC PRESERVATION

As an office of the California Department of Parks and Recreation, the Office of Historic Preservation (OHP) implements the policies of the NHPA on a statewide level. The OHP also carries out the duties set forth in the PRC and maintains the California Historic Resources Inventory.

The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the state's jurisdiction.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES (CALIFORNIA REGISTER)

See detailed discussion of this regulation in Section 3.5, *Cultural Resources*.

CALIFORNIA PRC SECTIONS 5097.5, 5097.9, 5097.98-99

PRC Section 5097.5 defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands. This section also prohibits the knowing destruction of objects of antiquity without a permit (expressed permission) on public lands and provides for criminal sanctions.

In 1987, the Code was amended to require consultation with the California Native American Heritage Commission whenever Native American graves are found. It also established that violations for taking or possessing remains or artifacts are felonies.

PRC Section 5097.9 establishes the California Native American Heritage Commission to make recommendations to encourage private property owners to protect and preserve sacred places in a natural state and to allow appropriate access to Native Americans for ceremonial or spiritual activities. The Commission is authorized to assist Native Americans in obtaining appropriate access to sacred places on public lands, and to aid state agencies in any negotiations with federal agencies for the protection of Native American sacred places on federally administered lands in California.

PRC sections 5097.98 through 5097.99 require that the Governor's California Native American Heritage Commission be consulted whenever Native American graves are found. According to these sections, it is illegal to take or possess remains or artifacts taken from Native American graves; however, it does not apply to materials taken before 1984. Violations occurring after January 1, 1988, are felonies.

PRC Section 5097.98 (Section 7050.5 of the Health and Safety Code) authorizes the NAHC to regulate Native American concerns regarding the excavation and disposition of Native American cultural resources. Among its duties, the Commission is authorized to resolve disputes relating to the treatment and disposition of Native American human remains and items associated with burials. Upon notification of the discovery of human remains by a county coroner, the Commission notifies the Native American group or individual most likely descended from the deceased. PRC 5097.98(b) requires that landowners ensure that the immediate vicinity (according to generally accepted cultural or archaeological standards of practices) are not damaged or disturbed by further development until the landowner has discussed and conferred with most likely descendants.

AB 52 AND TRIBAL CULTURAL RESOURCES

See detailed discussion of this regulation in Section 3.5, *Cultural Resources*.

CALIFORNIA COASTAL ACT

See detailed discussion of this regulation in Section 3.5, *Cultural Resources*.

CALIFORNIA HEALTH AND SAFETY CODE SECTIONS 18950 THROUGH 18961

The State Historic Building Code (HSC) Sections 18950–18961 provide alternative building regulations and building standards for the rehabilitation, preservation, restoration (including related reconstruction), or relocation of buildings or structures designated as historic buildings. Such alternative building standards and building regulations are intended to facilitate the restoration or change of occupancy so as to preserve their original or restored architectural elements and features, to encourage energy conservation and a cost-effective approach to preservation, and to provide for the safety of the building occupants.

CALIFORNIA PENAL CODE SECTION 622 – DESTRUCTION OF HISTORICAL PROPERTIES

This section of the California Penal Code makes it a misdemeanor for anyone (except the owner) to willfully injure or destroy anything of archaeological interest or value whether on private lands or within any public park or place. In addition, Penal Code Section 622.5 sets the penalties for the damage or removal of cultural resources.

SENATE BILL 18 – TRADITIONAL TRIBAL CULTURAL PLACES

See detailed discussion of this regulation in Section 3.5, *Cultural Resources*.

EXECUTIVE ORDER B-10-11

See detailed discussion of this regulation in Section 3.5, *Cultural Resources*.

LOCAL

COUNTY GENERAL PLANS

In addition to federal and state regulations, local jurisdictions in the SCAG region may also provide regulatory protection and advisement regarding cultural resources (see Table 3.5-8, *County Policies and Ordinances Relevant to the SCAG Region*, in Section 3.5, *Cultural Resources*). California law requires that a general plan include seven elements (land use, open space, conservation, housing, circulation, noise, and safety). Many jurisdictions incorporate policies related to cultural and historical resources into the conservation element. Other jurisdictions choose to prepare a separate (optional) element dealing with cultural and/or historic preservation issues. Many jurisdictions also prepare ordinances addressing cultural resources and historic preservation.

CITY GENERAL PLANS AND ORDINANCES

In accordance with California Government Code Sections 6530(c) and (d), like the six counties in the SCAG region, all cities are required to have a conservation element and an open space element, as mandatory elements of their general plans. Many city general plans have provisions for historic districts and protection of locally important cultural resources that may or may not meet the criteria for eligibility for listing in the NRHP or CRHR.

3.18.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that Connect SoCal 2024 could result in significant impacts to tribal cultural resources, if the Plan would cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

- Listed or eligible for listing in the California Register of Historical Resources, or in the local register of historical resources as defined in PRC Section 5020.1(k); or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis of tribal cultural resources considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

The methodology for determining the significance of impacts to tribal cultural resources compares the existing (2022) conditions to the future (2050) conditions, as required by CEQA Guidelines Section 15126.2(a). The known tribal cultural resources (i.e., historical or archeological), Native American sacred sites, and human remains located within the SCAG region were evaluated using criteria set forth by the OHP, the CRHR, and the CEQA Guidelines. Native American sacred sites were analyzed using information provided by the NAHC from the SLF. The NAHC does not disclose the location or nature of the SLF listings, which limits the analysis to a count of resources within respective counties.

Over 112,000 cultural resources (including archaeological resources and historic architectural/built-environment resources) have been identified in the SCAG region, many of which are archaeological resources and/or TCRs. Each archaeological site is documented at an Information Center, which holds location information on archaeological sites for each region in California. Known archaeological resources are limited to areas that have been subject to various levels of research or investigation. Areas that have been subject to pedestrian surveys or sub-surface explorations represent only a fraction of the total area with the potential to yield such resources. Therefore, the analysis focuses on the potential for projects to necessitate ground-disturbing activities in areas where significant archaeological resources have been previously recorded or require work in sediments that have not been previously investigated.

As described under Section 3.18.1, *Environmental Setting*, above, ESA assisted with the tribal consultation process undertaken by SCAG. ESA contacted the NAHC to request a Sacred Lands File Search and CEQA Tribal Consultation List (see Appendix G).

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies, some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

- IMPACT TCR-1 Cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or
 - A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Public Resources Code Section 5024.1(c). In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Significant and Unavoidable Impact – Mitigation Required

Implementation of the Plan has the potential to cause a substantial adverse change in the significance of tribal cultural resources in the SCAG region, defined in PRC Section 21074, as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe.

Pursuant to AB 52, SCAG contacted the NAHC to request an SLF search (which yielded a positive result since it is a yes/no result and it was for the entire region). NAHC also provided a formal list of tribal contacts within the SCAG region (see Appendix G). As noted above, the AB 52 tribal outreach concluded on January 20, 2023, with no requests for consultation.

Direct permanent impacts to TCRs (resources either listed or eligible for listing in the California Register of Historical Resources, or local register of historical resources, or resources determined by the lead agency to be significant). Impacts frequently result from ground disturbance associated with construction, such as grading and excavation, but also from other types of activities that can affect rocks, sacred plants and/or sacred places. As for archeological resources, implementation of the Plan could have a relatively higher potential to directly impact TCRs, primarily by grading or excavation in previously undisturbed soil and by the disturbance of buried resources that have not been previously identified. But there is also the potential to impact other types of TCR resources that may not be buried including site features, places, cultural landscapes, sacred places and objects. The potential for direct impacts to TCRs may be comparatively less for improvements to existing facilities and modifications to existing rights-of-way since these areas have been previously disturbed. Regardless of prior disturbance, however, as discussed in Section 3.5, *Cultural Resources*, Impact CUL-2, any excavation has the potential to directly impact undocumented TCRs of an archaeological nature.

Tribal cultural resources are likely to be encountered near areas of prior Native American occupation and activity, which includes areas both within and outside areas of current development. Surficial archaeological deposits that are TCRs are more likely to be heavily disturbed within urban areas and more intact in rural settings; however, this

does not preclude the presence of buried archaeological resources that may be significant in urban settings. Archaeological sites that may meet the TCR definition that have been buried below grade have no surface manifestations, making accurate prediction of their location during project planning problematic.

Direct permanent impacts would be significant if TCRs cannot be avoided or preserved in place by project design or redesign and are destroyed or substantially altered. Disturbance of TCR features or places would compromise the traditional use of or the cultural character and integrity of the resource and may result in a significant impact if its contributing characteristics or the character of its physical setting is destroyed or substantially altered. Permanent direct impacts may be addressed by advance project planning and consulting with tribes that have requested consultation to ensure known TCRs are avoided and preserved in place, or to develop project alternatives that would minimize impacts to known TCRs. Permanent direct impacts to TCRs of an archaeological nature discovered inadvertently during project construction may be addressed by project redesign to avoid and preserve the TCR, and by requested tribal consultation focused at minimizing the impact.

Permanent indirect impacts from construction and operational improvements may result from potential access-related damage to TCRs when public accessibility is increased due to changes in land use or new or improved transportation networks stemming from the Plan. The likelihood of unauthorized artifact collecting and destruction (intentional or unintentional) of TCRs of an archaeological nature, or of damage to or destruction (intentional or unintentional) of TCRs that are traditional places for gathering natural resources, cultural landscapes, or sacred places, increases with ease of access. Recreational use, overland vehicle travel, and vandalism would degrade the integrity and traditional use of the TCRs. Ensuring appropriate measures that would minimize or reduce damage to TCRs are devised during project planning, coupled with requested tribal consultation, may reduce indirect access-related impact.

While there are state requirements in place to minimize adverse impacts to TCRs, there is still the potential for damage to such resources as a result of implementation of the Plan. The Plan could result in direct impacts through substantial alteration or removal of TCRs and/or indirect impacts from access-related damage from construction projects and ongoing operations resulting from projects implemented as a result of the Plan. Therefore, impacts related to changing the significance of TCRs are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-CUL-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-CUL-1.

PMM-TCR-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce substantial adverse effects on tribal cultural resources. Such measures may include the following or other comparable measures identified by the lead agency:

- a) Avoid and/or preserve the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning

greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria

- b) Treat the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following: protecting the cultural character and integrity of the resource; protecting the traditional use of the resource; and protecting the confidentiality of the resource;
- c) Provide permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places; and protecting the resource.
- d) If tribal cultural resources are found, then the lead agency should consider tribal construction monitoring.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to tribal cultural resources, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to tribal cultural resources, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

3.18.4 SOURCES

- California Public Resources Code. Division 13, Chapter 2.6. General [21080–21098], Section 21083.2.
- Code of Federal Regulations. Title 36, Chapter 1, Part 60: National Register of Historic Places.
- Eastern Information Center (EIC). 2022. Cultural Resources Records Search request sent by ESA to EIC for the SCAG Connect SoCal 2024. Results received on October 18, 2022.
- Federal Register. 1971. Executive Order 11593 – Protection and enhancement of the cultural environment. <https://www.archives.gov/federal-register/codification/executive-order/11593.html>. Accessed July 25, 2023.
- Indian Affairs. 2023. U.S. Department of the Interior. Search Federally Recognized Tribes by State. https://www.bia.gov/service/tribal-leaders-directory/federally-recognized-tribes?field_us_state_s_value=CA&page=5. Accessed January 19, 2023.
- Miller, L. The Secret Treaties with California Indians. <https://www.archives.gov/research/native-americans/treaties/viewing-treaties>. Accessed January 19, 2023.
- National Park Service (NPS). 2017. The Secretary of the Interior's Standards for the Treatment of Historic Properties. <https://www.nps.gov/orgs/1739/secretary-standards-treatment-historic-properties.htm>. Accessed July 28, 2023.
- NPS. 2023a. American Antiquities Act of 1906, 16 U.S.C. Sections 431–433. <https://www.nps.gov/subjects/archeology/antiquities-act.htm>. Accessed July 25, 2023.
- NPS. 2023b. Archaeological Resources Protection Act <https://www.nps.gov/subjects/archeology/archaeological-resources-protection-act.htm>. Accessed July 25, 2023.
- NPS. 2023c. Historic Sites Act of 1935, 16 U.S.C. sec. 461-467. <https://www.nps.gov/subjects/archeology/historic-sites-act.htm>. Accessed July 25, 2023.
- NPS. 2023d. National Historic Preservation Act of 1966, Public Law 102-575. <https://www.nps.gov/subjects/archeology/national-historic-preservation-act.htm>. Accessed July 25, 2023.
- NPS. 2023e. *Archeological and Historic Preservation Act as Amended*. https://www.nps.gov/history/local-law/FHPL_ArchHistPres.pdf.
- South Central Coastal Information Center (SCCIC). Cultural Resources Records Search request sent by ESA to SCCIC for the SCAG Connect SoCal 2024. Results received on December 2, 2022.
- South Coastal Information Center (SCIC). Cultural Resources Records Search request sent by ESA to SCIC for the SCAG Connect SoCal 2024. Results received on October 17, 2022.
- U.S. Environmental Protection Agency (USEPA). 2011. *California Tribal Lands*. Region 9 – Air. https://www3.epa.gov/region9/air/maps/pdfs/r9-california-tribal-lands-reservations-air1100040_3.pdf.

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3.19 UTILITIES AND SERVICE SYSTEMS

This section of the 2024 PEIR describes the existing utilities and service systems in the SCAG region, sets forth the regulatory framework that affects utilities and service systems, and analyzes the potential impacts of Connect SoCal 2024. In addition, this PEIR provides regional-scale mitigation measures as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental review to reduce identified impacts as appropriate and feasible. Waste discharge requirements and water quality standards are discussed in greater detail in Section 3.10, *Hydrology and Water Quality*. Impacts associated with the consumption of electricity, natural gas, and other energy sources are addressed in Section 3.6, *Energy*, of this 2024 PEIR.

3.19.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for utilities and service systems follow:

- *Nonhazardous Municipal Solid Waste*: More commonly known as trash or garbage—consists of everyday items that are used and then thrown away, such as product packaging, grass clippings, furniture, clothing, bottles, food scraps, newspapers, appliances, paint, and batteries. This comes from homes, schools, and businesses.
- *Regional Water Quality Control Board (RWQCB)*: There are nine RWQCBs in California. The RWQCBs enforce the federal and State Clean Water Acts, protecting groundwater and surface water quality and are responsible for implementing Water Quality Control Plans (WEF 2023a).
- *Sanitary Landfill*: Sanitary landfills are sites where nonhazardous municipal solid waste is disposed of. Sanitary landfills are subject to federal and state solid waste disposal regulations to protect air and water resources and to ensure public safety.
- *Septic Tank*: Septic tanks are underground vessels used for treating domestic wastewater from a single dwelling or building by a combination of settling and anaerobic digestion. They are regulated as Onsite Wastewater Treatment Systems (OWTS). Effluent is usually disposed of through a dispersal system which consists of one or a combination of leach fields, seepage pits, and/or subsurface drip dispersal system. Settled solids in a septic tank are pumped out periodically and hauled to a treatment facility for disposal.
- *Stormwater*: Stormwater (also referred to as “storm water”) is surface water flow caused by precipitation. As stormwater runoff flows over the land or impervious surfaces (paved streets, parking lots, and building rooftops), it accumulates debris, chemicals, sediment, or other pollutants that could adversely affect water quality if the runoff is discharged untreated (USEPA 2023a). The federal and State Clean Water Acts regulate stormwater quality at construction sites, industrial sites, and municipal separate storm sewer systems.
- *Onsite Wastewater Treatment System (OWTS)*: OWTS are onsite systems that treat domestic wastewater through the use of septic tanks, seepage pits, leach fields, or drip lines. Installation and maintenance requirements are regulated through the federal and State Clean Water Acts.
- *Water Supply System*: A water supply system is a system for the collection, transmission, treatment, storage and distribution of water from source to consumers, for example, homes, commercial establishments, industry, irrigation facilities and public agencies for water-related activities (firefighting, street flushing, and so forth).

- *Wastewater:* The spent or used water of a community or industry that contains dissolved and suspended matter. Wastewater is generated by municipal, commercial, and industrial land uses and is regulated through the federal and State Clean Water Acts.

3.19.1.1 WATER SUPPLY

WATER SUPPLIES

California faces ongoing challenges with its water supply, with limited water resources stretched tightly between the environment, agriculture, and residential uses. Severe weather patterns linked to climate change have exacerbated the water issue, resulting in record low snowpack in several recent years followed by record high snowpack in 2022/2023. Water supplies are captured from natural surface water runoff, stored groundwater, and treated wastewater. Natural sources consist of surface water bodies like rivers and lakes, and groundwater resources stored in underground aquifers. Extensive water storage and conveyance infrastructure has been built over the last century throughout the state to move water to where it is needed. Recycled water is treated wastewater that can be reused for beneficial uses such as irrigation, groundwater recharge, or potable use. Desalination of brackish groundwater or seawater desalination is also employed in California to augment water supplies.

Naturally occurring surface and groundwater within the SCAG region are insufficient to support the region's growing population. In the SCAG region, approximately three quarters of potable water comes from imported sources (SCAG 2008). Restrictions on imported water as well as drought conditions have necessitated water conservation measures. These conservation measures have lessened the use of potable water in many areas of the region. In addition, the demand for water is being partially fulfilled by the increasing use of reclaimed water for non-potable purposes such as greenbelt irrigation and industrial processing and servicing.

Counties within the SCAG region use groundwater and surface water to meet water demand. Integrated Regional Water Management Plans and Urban Water Management Plans (UWMPs), developed for cities and counties throughout the region, help guide water management and supply and demand projections. Water is imported by the Metropolitan Water District of Southern California (MWD) and the State Water Project (SWP), and groundwater is pumped from various local wells.

WATERSHED MANAGEMENT

Watershed management relates to sustaining watersheds at an acceptable level of quality, contributing to resource quality, and maintaining groundwater supplies. The watersheds in the SCAG region are shown in Section 3.10, *Hydrology and Water Quality* (Map 3.10-2, Watersheds in the SCAG Region). These large watersheds are further divided into smaller sections by internal surface water drainage areas and groundwater basins.

LOCAL WATER SUPPLIES

Local water supplies in the SCAG region include groundwater, stormwater runoff, desalinated ocean water, and recycled water. Major groundwater basins include the Oxnard Plain in Ventura County; the San Fernando Basin, Antelope Valley Basin, Santa Clara River Basin, San Gabriel Basin, Central Basin and West Coast Basin in Los Angeles County; the Orange County Groundwater Basin; the Chino Basin and Bunker Hill Basin in San Bernardino County; and the Coachella Valley Basin in Riverside County. Groundwater historically supported agriculture and municipal developments in the region. However, over-pumping of the basins resulted in the need to import water to support

the increasing demands. More recently, recycled water, desalinated water, and stormwater capture have become important local supplies that offset the need for imported water.

Recent efforts to store recycled water and surplus water in groundwater basins for use during drought periods have proven successful. As of fiscal year 2021/22, Metropolitan has invested \$724 million to fund 88 recycled water projects and 28 groundwater recovery projects, which have produced 4 million acre-feet (af) of added capacity (MWD 2023b). A number of agencies within the region are also active in the recharge of surface water, including the Orange County Water District, Los Angeles County Department of Water and Power, Foothill Municipal Water District, San Bernardino County Water and Flood Control District, Coachella Valley Water District, the Water Replenishment District of Southern California, the San Gabriel Valley Municipal Water District, and the Calleguas Municipal Water District.

IMPORTED WATER SUPPLIES

COLORADO RIVER AQUEDUCT

The Colorado River is a major source of water for Southern California, and is imported via the Colorado River Aqueduct, owned and operated by MWD.

Under water delivery contracts with the United States, California entities have relied upon legal entitlements to Colorado River water, beginning with the 1922 Colorado River Compact (USBR 1922). California was entitled to 4.4 million af, as well as half on any surplus, as defined by the U.S. Department of the Interior.

However, with increased urbanization in the states within the Colorado River Basin, and limitation agreements between those states, surplus water for California was eliminated; the State is now negotiating with the US Bureau of Reclamation various strategies to reduce of Colorado River water diversions. Examples of these strategies include additional reservoir and storage agreements, new water transfers between agricultural and urban users, and more water conservation and recycling (MWD 2021a). The water levels of Colorado River have been significantly impacted by on-going drought conditions and chronic overuse, prompting the federal government to call for the collective reduction of water use by 2 million to 4 million acre-feet. The seven states which depend on the Colorado River's water supplies – California, Arizona, Colorado, Nevada, New Mexico, Utah and Wyoming – are currently in the process of developing agreements for how best to reduce their water use (USDOI 2023).

The Colorado River Hydrologic Region (see discussion below) is of particular concern because it encompasses the Coachella Valley in the West Basin and the desert in the East Basin. Irrigation needs in the Coachella Valley are met almost exclusively by water imported from the Colorado River. Historical extraction of groundwater in the Coachella Valley has caused overdraft. Currently, an extensive groundwater recharge project is being undertaken by the Coachella Valley Water District that recharges Colorado River Water into spreading basins. Within the East Basin, irrigation and domestic water is provided by the Colorado River with only approximately one percent groundwater use and little direct reclamation. Agricultural runoff and some domestic wastewater do get returned to the Colorado River. Therefore, the water at the southern end of the watershed is a mixture of Colorado River water, agricultural runoff, and reclaimed water.

STATE WATER PROJECT

The State Water Project supplies water to Southern California via the California Aqueduct, with delivery points in Los Angeles, San Bernardino, and Riverside Counties. SWP was constructed and is managed by the Department of Water Resources (DWR), and is the largest state-owned, multipurpose water project in the country. State Water

Project has historically provided 25 to 50 percent of MWD's water, anywhere from 450,000 af to 1.8 million af annually. In 2020, the SWP supplied 588,000 af of MWD's water (MWD 2021a). In February 2023, due to early gains in the Sierra snowpack, the DWR announced a 210,000 af increase in forecasted State Water Project (SWP) deliveries this year and is expected to deliver 35 percent of requested water supplies in 2023 (DWR 2023a). The State Water Project provides water to approximately 27 million people and irrigation water for roughly 750,000 acres of agricultural lands annually.

LOS ANGELES AQUEDUCT

The Los Angeles Aqueduct, originally built in 1913, carries water 233 miles south from Owens Valley to the City of Los Angeles. The original aqueduct project was extended in 1940 to the Mono Basin. The system was supplemented by a second project, parallel to the first, completed in 1970. Los Angeles Aqueduct deliveries from the Mono Basin and Owens Valley have ranged from a 2015 low of 36,000 af and a high of 467,000 af in 1998. Since 1990, average deliveries have been approximately 240,000 af per year. Due to environmental considerations, approximately half of the Los Angeles Aqueduct water supply has been reallocated to supply environmental mitigation and enhancement projects, including enhancing groundwater spreading grounds and other improvements to facilitate increasing supply (MWD 2015).

TRANSFERS AND WATER BANKING

In an effort to diversify water sources and reduce reliance on specific water imports, water agencies have engaged in water transfer agreements. These contractual agreements, made with irrigation districts, reduce water use on agricultural lands either through agricultural conservation or fallowing land.¹ The water "freed" by these reductions is transferred to a municipal water district, where it may be used or stored in aquifers for future use, a practice called water banking. Water banking is also done during wet years, when rainwater is collected and directed toward recharge facilities for future use.

WATER TREATMENT FACILITIES

As identified below in **Table 3.19-1, Active Water Treatment Facilities in the SCAG Region**, there are 27 water treatment facilities that service the SCAG region.

California's water-related assets and services are provided by many interdependent systems that historically have been managed on a project-by-project basis. The gap between water supply and water demand decreased substantially between 2001 and 2010. This narrowing gap was further exacerbated in the SCAG region by the 2012-2015 and 2020-2022 California droughts. However, persistent heavy rains in late 2022 and early 2023 have resulted in an overall increase in water supplies statewide. More specifically, California has experienced 31 atmospheric rivers during Water Year 2023 through March, which have delivered between 1.5 to 2 water years' worth of precipitation in much of the state (National Integrated Drought Information System [NIDIS] 2023). Snowpack remained above normal as of April 2023 — over 200 percent of normal in many parts of the region. The precipitation from December 2022 to March 2023 has alleviated much of the precipitation deficit in the California central and south coast region (NIDIS 2023).

¹ Some urban agencies also have the ability to enter "spot" water markets and to purchase water on an "as needed" basis.

TABLE 3.19-1 Active Water Treatment Facilities in the SCAG Region

COUNTY	DESIGN FLOW (MGD)
Imperial	0.53
Calipatria-Emerg. Disch	0.53
Los Angeles	33.619
Alhambra Groundwater Treatment Plant	0.35
Chadron Plant	—
Delta Plant	12
Granular Activated Carbon Treatment Plant	0.021
Hawthorne Drinking WTP	0.027
LA Co Waterworks Dist 40	—
Lankershim Yard	4.3
Leo J. Vander Lans Advanced WTP	4.32
Live Oak Well	0.234
Puente Valley Operable Unit Intermediate Zone Interim Remedy	2.88
Saugus Perchlorate Treatment Facility	2
Water Treatment Plant	3.6
Well 2A, Well 3, Well 10, Well 12, Well 13, El Monte Operable Unit Wells	0.131
Well No. 5 WTP	0.3
Wells 201 and 205 Perchlorate Treatment	3.456
Orange	156.3
SCWD Aliso Creek Water Harvesting Project	34.37
Irvine Desalter Project Potable WT System	34.37
San Juan Capistrano GW TP	43.78
SCWD GW Recovery Facility	43.78
Riverside	0.005
Chiriaco Summit WD	0.005
JCSD Wells 27 and 28	—
San Bernardino	0.511
Richardson Treatment Plant	—
LLU Wellhead Treatment System	—
Riverside Public Utility's Wellhead Treatment Plants	0.021
San Bernardino MWD Wellhead Treatment Systems	0.49
Ventura	0.067
San Nicolas Desalinization Plant	0.067
Grand Total	191.032

Source: Cal EPA 2023

According to DWR’s Draft 2023 California Water Plan Report (DWR 2023e), statewide annual water demand and water supplies vary substantially between 2016 and 2020, with the highest overall water consumption and corresponding supply (90.6 million af) occurring in Water Year 2019. The statewide demand and supply sources from 2016 to 2020 are summarized below in **Table 3.19-2, Statewide Applied Water Uses by Sector for Water Years 2016–2020 (in million acre-feet)**, and **Table 3.19-3, Statewide Dedicated and Developed Water Supplies by Supply or Place of Origin for Water Years 2016–2020 (in million acre-feet)**, respectively, below.

TABLE 3.19-2 Statewide Applied Water Uses by Sector for Water Years 2016–2020 (in million acre-feet)

SECTOR	2016	2017 ^A	2018	2019	2020
Percent Average Rainfall	103%	161%	73%	130%	71%
Precipitation	198.1	309.4	140.6	249.2	136.3
Urban	7.2	—	8.2	7.9	8.0
Large Landscape	0.6	—	0.8	0.6	0.8
Commercial	1.2	—	1.1	1.1	1.1
Industrial	0.4	—	0.4	0.4	0.4
Energy Production	0.1	—	0.1	0.1	0.1
Residential – Interior	2.8	—	3.0	2.8	3.0
Residential – Exterior	1.4	—	1.9	1.9	1.9
Conveyance Applied Water	0.3	—	0.3	0.3	0.3
Groundwater Recharge Applied Water	0.4	—	0.6	0.7	0.4
Irrigated Agriculture	33.2	—	33.7	31.6	32.4
Applied Water-Crop Production	30.8	—	30.3	27.5	29.2
Conveyance Applied Water	2.3	—	2.7	2.9	2.7
Groundwater Recharge Applied Water	0.1	—	0.7	1.2	0.5
Environmental Water	41.2	—	31.5	51.0	23.9
Managed Wetlands	1.5	—	1.6	1.5	1.7
Minimum Required Delta Outflow	4.8	—	5.3	8.4	4.4
Instream Flow Requirements	6.3	—	6.5	7.7	6.4
Wild and Scenic Rivers	28.6	—	18.2	33.4	11.4
Total Uses^b	81.6	—	73.4	90.6	64.4

Source: DWR 2023e.

Table Notes:

- a. Data are not available for Water Year 2017.
- b. Totals may not add up exactly due to rounding.

TABLE 3.19-3 Statewide Dedicated and Developed Water Supplies by Supply or Place of Origin for Water Years 2016–2020 (in million acre-feet)

SUPPLY OR PLACE OF ORIGIN	2016	2017 ^A	2018	2019	2020
Percent Average Rainfall	103%	161%	73%	130%	71%
Precipitation	198.1	309.4	140.6	249.2	136.3
Instream Environmental Supply	28.1	—	18.2	30.3	12.0
Local Projects	5.4	—	6.9	8.3	6.5
Local Imported Deliveries	0.6	—	0.7	0.9	0.9
Colorado River Project	4.7	—	4.4	4.0	4.1
Federal Projects	7.0	—	8.7	8.9	7.8
State Project	1.8	—	2.5	2.4	1.9
Groundwater Extraction	17.9	—	16.2	12.2	16.4
Inflow and Return Flow for Carryover Storage		—	0.0	0.0	0.0
Reuse and Recycled Water	15.9	—	15.7	23.5	14.5
Total Supplies^b	81.6	—	73.4	90.6	64.4

Source: DWR 2023e.

Table Notes:

- a. Data are not available for Water Year 2017.
- b. Totals may not add up exactly due to rounding.

There are typically three sources of supply water: (1) natural sources, (2) manmade sources, and (3) reclamation. Natural water sources include rivers, lakes, streams, and groundwater stored in aquifers. Manmade sources include runoff water that is treated and stored in reservoirs and other catchment structures. Reclaimed water is wastewater that has been conveyed to a treatment plant and then treated enough that it may be used again for certain uses (such as irrigation). However, reclaimed water is not potable (drinkable) and must be conveyed in a separate system in order to ensure there is no possibility of direct human consumption. See Table 3.19-3.

WATER SUPPLY AND USE

Surface and groundwater resources are largely managed as separate resources, when they are, in fact, a highly interdependent system of watersheds and groundwater basins. Water quality, land use, and flood management are also integral to the effective management of these systems (DWR 2013).

Within the SCAG region, water supply comes from a variety of sources. While MWD imports water from Colorado River and State Water Project and provides wholesale water supply to its coverage area, many cities and some

county areas rely on groundwater, especially those along the coast. San Bernardino and Riverside Counties, for example, rely on a mixture of groundwater and surface water.

Following are the descriptions of the two primary hydrologic regions (South Coast and Colorado River) as well as associated regional water budgets.

SOUTH COAST HYDROLOGIC REGION

The South Coast Hydrologic Region (see Map 3.10-1, Hydrologic Regions, in Section 3.10, *Hydrology and Water Quality*) has a diverse mix of both local and imported water supply sources. Local water sources include water recycling, groundwater storage, and infrastructure enhancements. The region imports water through the State Water Project, the Colorado River Aqueduct, and the Los Angeles Aqueduct. These resources allow the region flexibility in managing supplies and resources in wet and dry years. The MWD wholesales the water to a consortium of 26 member agencies, including 14 cities, 11 municipal water districts, and one county authority that serve over 20 million people living in six counties stretching from Ventura to San Diego. The MWD service area boundaries are shown in **Map 3.19-1, Metropolitan Water District of Southern California Service Area**, below. MWD imported an average of 1 million af of water per year from the SWP from 1995 to 2010, and just under 1 million af per year from the CRA during the same time period. **Table 3.19-4, South Coast Region Water Balance**, shows the water balance of the South Coast Hydrologic Region from 2016 to 2020.

TABLE 3.19-4 South Coast Region Water Balance

	2016	2017 ^A	2018	2019	2020
Water Use^b					
Urban	3,426.1	—	3,836.9	3,652.9	3,651.4
Agricultural	695.1	—	567.0	404.2	510.0
Environmental	50.4	—	62.5	216.5	112.1
Total	4,171.6	—	4,466.4	4,273.6	4,273.5
Supplies^b					
Local Projects	90.4	—	107.6	170.7	173.6
Local Imported Deliveries	96.0	—	284.2	309.3	245.0
Colorado River Project	1,214.6	—	933.0	794.3	853.1
Federal Projects	0.1	—	0.0	1.5	0.3
State Project	920.4	—	1,060.2	935.3	1,051.6
Groundwater Extraction	1,331.2	—	1,579.5	1,415.1	1,362.3
Reuse and Recycled Water	501.8	—	501.9	647.4	587.6
Total	4,171.6	—	4,466.4	4,273.6	4,273.5

Source: DWR 2023.

Table Notes:

- a. Data are not available for Water Year 2017.
- b. Figures in thousands of acre-feet of water.

COLORADO RIVER HYDROLOGIC REGION

About 85 percent of the Colorado River Region’s urban and agricultural water supply comes from surface water deliveries from the Colorado River. Water from the river is delivered to this region via the All American and Coachella canals, local diversions, and the Colorado River Aqueduct by means of an exchange for SWP water. The Colorado River is an interstate and international river whose use is apportioned among the seven Colorado River Basin states and Mexico by a complex body of statutes, decrees, and court decisions known collectively as the “Law of the River.” Local surface water, groundwater, and the SWP provide the remainder of water to the region. In addition, many of the alluvial valleys in the regions are underlain by groundwater aquifers that are the sole source of water for many local communities. However, some alluvial valleys contain groundwater of such poor quality it is not suitable for potable uses.

Other cities such as Banning, Coachella, Indio, Palm Desert, Hesperia, and Victorville, are solely dependent on groundwater; while other cities in the SCAG region have supplemented their groundwater supplies with water from the State Water Projects or local streams and reservoirs. **Table 3.19-5, Colorado River Region Water Balance**, shows the water balance for the Colorado River Hydrologic Region from 2016 to 2020.

TABLE 3.19-5 Colorado River Region Water Balance

WATER USE	2016	2017 ^A	2018	2019	2020
Water Use^b					
Urban	272.9	—	644.6	507.7	426.1
Agricultural	3,907.8	—	3,714.1	3,492.7	3,574.8
Environmental	45.1	—	45.1	45.1	45.1
Total	4,225.8	—	4,403.8	4,045.5	4,046.0
Supplies^b					
Local Projects	2.0	—	1.8	1.7	1.7
Local Imported Deliveries	0.0	—	0.0	0.0	0.0
Colorado River Project	3,533.6	—	3,420.4	3,213.0	3,257.1
Federal Projects	0.0	—	0.0	0.0	0.0
State Project	97.5	—	217.0	52.9	158.4
Groundwater Extraction	123.0	—	273.2	302.6	156.3
Reuse and Recycled Water	469.7	—	491.4	475.3	472.5
Total	4,225.8	—	4,403.8	4,045.5	4,046.0

Source: DWR 2023.

Table Notes:

a. Data are not available for Water Year 2017.

b. Figures in thousands of acre-feet of water.

WATER DEMAND

CALIFORNIA WATER DEMAND SOURCES

California measures water use across three main sectors, including urban land uses (communities), agriculture, and environment (Public Policy Institute of California [PPIC] 2023). On average, communities use 10 percent of water statewide, agriculture uses 40 percent, and the environment uses 50 percent. These proportions vary depending on the region and whether the year is wet or dry. State accounting of water for the environment includes some water used for people, notably the water dedicated to keeping the Sacramento–San Joaquin Delta fresh enough for municipal and farm use. Some of the water used by each sector returns to rivers and groundwater basins, where it can be used again (PPIC 2023).

Total urban water use has plateaued, even as the population has grown (PPIC 2023). Water use by urban, suburban, and rural communities—also known as urban water use—is highest in the San Francisco Bay Area and the South Coast; both regions rely primarily on water imported from elsewhere. Per-capita water use has been steadily falling, even before the 2012–2016 drought made conservation a major priority. In severely affected areas, the 2020–22 drought resulted in large additional declines. Total urban use has plateaued, even though California’s population grew by 5.5 million from 2000 to 2020. Initial water savings came mainly from more efficient indoor plumbing and fixtures; more recent efforts have also focused on reducing outdoor use, which accounts for nearly half of all urban use.

Agricultural water use has changed little, while the value of production has grown (PPIC 2023). California has 8.5 million acres of irrigated cropland. Perennial fruit and nut crops’ share (led by almonds) has increased, up from roughly a quarter of irrigated acreage in 2000 to nearly half in 2018. In the San Joaquin Valley, perennials cover over 60 percent of irrigated acreage. Although irrigated acreage and farm water use have not grown, the value of agricultural output has been rising, reflecting the shift toward perennials. Adjusted for inflation, farm gross domestic product was 23% higher in 2018 than in 1980, while farm water use was 15% lower (PPIC 2023). Farms use both surface water—sometimes imported across long distances—and groundwater. Groundwater use increases in dry years, when surface supplies are lower.

Environmental water supports people and ecosystems in a variety of settings (PPIC 2023). Environmental water supports natural infrastructure that is important to people and freshwater biodiversity. Water use by the environment falls under four categories: wild and scenic rivers, instream ecosystem use, water quality maintenance for communities and farms, and wetlands within wildlife preserves. The environment’s share of water use varies dramatically by region. The majority (63 percent) occurs in wild and scenic rivers, primarily in the north of the state. In wet years, environmental water makes up a larger share of available water (61 percent) than in dry years (41 percent); in critically dry years it can plummet.

Drought and implementation of the Sustainable Groundwater Management Act (SGMA; see discussion in Regulatory Framework in Section 3.10, *Hydrology and Water Quality*) will impact future water use (PPIC 2023). Cities avoided major supply disruptions in the 2012–16 and 2020–22 droughts, reflecting long-term investments in supplies and demand management. Small communities that depend on wells are much more vulnerable during droughts, when groundwater levels fall. Groundwater is a key drought reserve for agriculture, but long-term over-pumping threatens this resource. The 2014 SGMA requires pumpers to reach sustainability by the early 2040s, and will cause farm water use to fall, especially in critically overdrafted basins. Efforts to augment supply (e.g., through groundwater recharge) and flexible water trading rules can lessen the economic impacts.

WATER USE DURING DROUGHT CONDITIONS

Californians experienced the driest January, February and March on record in 2022 with the biggest jump in water use since the 2019-2022 drought began: a nearly 19-percent increase in March 2022 compared to two years earlier (Cal Matters 2022). Despite the urging for residents to conserve by water officials, California’s water use in March 2022 was the highest since 2015, standing in stark contrast to February, when residents and businesses used virtually the same amount of water in cities and towns as two years prior. The massive increase shrank conservation gains since the summer of 2021, according to data provided by the State Water Resources Control Board (SWRCB): During the period from July 2021 through March 2022, Californians used 3.7 percent less water than during the same stretch in 2020. The largest increases, nearly 27 percent, came in the Los Angeles basin and San Diego County, as well as the desert regions of southeast California that include Palm Springs and the Imperial Valley. Residents and businesses in southern Sierra Nevada communities used about 23 percent more water than in 2020, and the Central Coast followed close behind with a 20-percent rise. The only savings came in the North Coast region, which used 4.3-percent less water. Even the San Francisco Bay Area had a 2.5-percent increase. While the data reflects water used by residents and industries statewide, it does not include agriculture, which accounts for roughly 40 percent of the total water used in the state (Cal Matters 2022).

3.19.1.2 WASTEWATER

WASTEWATER TREATMENT FACILITIES

Wastewater treatment is generally performed in three stages: primary treatment, secondary treatment, and tertiary treatment. During primary treatment, materials sink to the bottom of tanks and then microbes eat the organic material and settle out in the secondary treatment tanks. Tertiary treatment occurs last, in which remaining pollutants are filtered out via sand and coal. Along with the additions of disinfectant chemicals like chlorine and careful testing and monitoring, this process treats water to an acceptable level to be returned into natural water bodies or recycled for irrigation, industrial, and agricultural uses. More recently, advanced treatment techniques have achieved level of cleanliness that allows highly purified recycled water to recharge underground aquifers (LACSD 2023).

A majority of wastewater within the SCAG region is treated by one of the 68 major wastewater treatment facilities in the area. Such facilities are often located in densely populated areas and in close proximity to bodies of water for simple discharge of treated water. Within each SCAG county, various smaller municipal wastewater systems and agencies manage wastewater from cities on a smaller scale, and private on-site sewage disposal systems are also available to serve wastewater generators without access to a municipal system. **Table 3.19-6, Major Wastewater Treatment Facilities in the SCAG Region (2023)**, lists the 68 large-scale facilities managing wastewater within the region, which have a combined design flow of approximately 2,206 million gallons per day (mgd).

TABLE 3.19-6 Major Wastewater Treatment Facilities in the SCAG Region (2023)

COUNTY	DESIGN FLOW (MGD)
Imperial	23.53
Brawley City WWTP	5.9
Calexico City WWTP	4.3
Calipatria City WWTP	1.73
El Centro City WWTP	8

COUNTY	DESIGN FLOW (MGD)
Herber PUD WWTP	1.2
Imperial City WWTP	2.4
Los Angeles	1,395.75
Avalon WWTF	1.2
Civic Center Water Treatment Facility	0.35
Burbank WWRP	9.0
Donald C. Tillman WWRP	80
Edward C. Little Water Recycling Plant	5.2
Groundwater Reliability Improvement Project (WDR GRIP/ AWTF)	--
Hyperion WWTP	450
Joint Water Pollution Control Plant, Carson	400
Juanita Millender-McDonald Carson Regional Water Recycling Plant	1.2
Long Beach WRP	25
Los Angeles-Glendale WWRP	80
Los Coyotes WRP	37.5
Malibu Mesa WRP	0.2
Newhall Ranch WRP	2
Pomona Water Reclamation Plant	15
San Jose Creek Water Reclamation Plant	100
Saugus Water Reclamation Plant	6.5
Tapia WRF	16
Terminal Island Water Reclamation Plant	30
Valencia WRP	21.6
Whittier Narrows Water Reclamation Plant, El Monte	15
Orange	420.6
3A Treatment Plant	6.0
City of San Clemente WRP	5.0
El Toro WD WRP	3.7
IRWD Los Alisos WRP	7.5
Latham WWP	13.0
Michelson WWRF	28.0
OCS D Plant 1	182
OCS D Plant 2	150
SMWD Oso Creek WRP	3.3
SMWD-Chiquita WRP	3.4
SOCWA Coastal TP	6.7
SOCWA Regional TP	12.0

COUNTY	DESIGN FLOW (MGD)
Riverside	4112.42
Beaumont WWTP No. 1	6.0
Coachella SD WWTP	4.5
Coachella Valley WD WWTP	7
Corona WWRF No. 1	11.5
Corona WWRF No. 3	3
EVMWD Regional WWRF	8
Riverside City WWRF	40
Temescal Valley WD WWRF	2.25
Valley SD WWTP	9.5
WRCRWA Regional WWRF	14
San Bernardino	160.26
Big Bear WWRF	4.89
Colton WRF	5.6
Henry N. Wochholz WWRF	6.67
IEUA Carbon Canyon WWRF	11.4
IEUA Regional Plant No. 1	44
IEUA Regional Plant No. 4	14
IEUA Regional Plant No. 5	15
Margaret H Chandler WWRF	33.0
Rialto WWRF	11.7
Victor Valley Wastewater Reclamation Authority WTP	14.0
Ventura	93.9
Camarillo WRP	7.25
Camrosa Water Reclamation Facility	2.25
Hill Canyon WWTP	14
Moorpark WWTP	5.0
Ojai Valley WWTP	3.0
Oxnard Wastewater Treatment Plant	31.7
Santa Paula WWRP	4.2
Simi Valley WQCP	12.5
Ventura WRF	14
Total	2,206.46

Sources: Cal EPA 2023

Created by the State Legislature in 1967, the SWRCB has jurisdiction throughout California, where it protects water quality by setting statewide policies (SWRCB 2023a). The SCAG region incorporates five of the nine Regional Water Boards in the state:

- Region 4 – Los Angeles Regional Water Quality Control Board: Los Angeles and Ventura Counties (and small portions of Kern and Santa Barbara Counties)
- Region 6 – Lahontan Regional Water Quality Control Board: San Bernardino and Los Angeles (N/E corner) counties
- Region 7 – Colorado River Regional Water Quality Control Board: Imperial, San Bernardino, Riverside, and San Diego Counties
- Region 8 – Santa Ana Regional Water Quality Control Board: Orange, Riverside, and San Bernardino Counties
- Region 9 – San Diego Regional Water Quality Control Board: San Diego, Imperial, and Riverside Counties

STORM WATER DRAINAGE FACILITIES

Each city and county within the SCAG region maintains a storm drain system. The systems vary by age, size, and type depending on the municipality, and may consist of day pipe, iron/steel pipe, very old brick collector sewers, and reinforced concrete pipe facilities.

California Water Board Districts 4, 6, 7, 8, and 9 are all within the SCAG region and manage their own storm water drainage facilities, utilizing NPDES program permits. Under a NPDES permit, operators must develop a storm water management program to prevent polluted storm water run-off from entering Municipal Separate Storm Sewer Systems (MS4s), which often discharge to local water bodies.

In April 2018, the State Water Resources Control Board released a storm water strategy called the Strategy to Optimize Resource Management of Storm Water (STORMS). The report focuses on enhancing urban run-off capture and use by identifying barriers, providing incentives, and increasing public engagement. The STORMS report found that urban run-off can be a viable source of water and that hybrid strategies combining green and gray infrastructure will be imperative for future urban water management (SWRCB 2023b).

3.19.1.3 SOLID WASTE

EXISTING CONDITIONS

The majority of nonhazardous solid waste within the SCAG region is disposed of at local sanitary landfills. Due to increased recycling and waste reduction initiatives, solid waste within the SCAG region has declined in recent years. CalRecycle's Solid Waste Information System tracks the total tonnage of solid waste disposed by county. As shown below, in **Table 3.19-7, Solid Waste Tonnage within the SCAG Region (2022)**, the total amount of solid waste disposed of in the SCAG region was 18,904,570 tons in 2022 (the most recent year for which data is available). For comparison, the total region-wide disposal tonnage in 2019 was 20,300,023 tons (CalRecycle 2019b). This number includes waste trucked into the region from counties outside the SCAG boundaries.

TABLE 3.19-7 Solid Waste Tonnage within the SCAG Region (2022)

COUNTY	TOTAL TONNAGE
Imperial	349,325
Los Angeles	6,611,420
Orange	3,422,155
Riverside	4,735,739
San Bernardino	2,074,064
Ventura	1,711,867
Total	18,904,570

Source: CalRecycle 2022

SOLID WASTE MANAGEMENT FACILITIES

LANDFILLS

A landfill is a waste management unit at which waste is discharged in or on land for disposal. Landfills do not include surface impoundment, waste pile, land treatment unit, injection well, or soil amendments (CalRecycle 2023a). Landfills that receive solid waste in the SCAG region are listed in **Table 3.19-8, Active Solid Waste Landfills by SCAG County**.

TABLE 3.19-8 Active Solid Waste Landfills by SCAG County

COUNTY	NAME
Imperial	Calexico Solid Waste Site
Imperial	Niland Solid Waste Site
Imperial	Salton City Solid Waste Site
Imperial	Imperial Landfill
Imperial	Monofill Facility
Los Angeles	Scholl Canyon Landfill
Los Angeles	Burbank Landfill Site No. 3
Los Angeles	Lancaster Landfill and Recycling Center
Los Angeles	Chiquita Canyon Sanitary Landfill
Los Angeles	Calabasas Landfill
Los Angeles	Pebbly Beach (Avalon) Disposal Site
Los Angeles	San Clemente Island Landfill
Los Angeles	Sunshine Canyon City/County Landfill
Los Angeles	Antelope Valley Public Landfill
Los Angeles	Savage Canyon Landfill
Orange	Prima Deshecha Sanitary Landfill
Orange	Olinda Alpha Sanitary Landfill
Orange	Frank R. Bowerman Sanitary LF
Riverside	Badlands Sanitary Landfill
Riverside	Lamb Canyon Sanitary Landfill

COUNTY	NAME
Riverside	Oasis Sanitary Landfill
Riverside	Desert Center Landfill
Riverside	Blythe Sanitary Landfill
Riverside	El Sobrante Landfill
Riverside	Philadelphia Recycling Mine
San Bernardino	California Street Landfill
San Bernardino	Oro Grande Kiln Waste Dust Dump
San Bernardino	Victorville Sanitary Landfill
San Bernardino	Barstow Sanitary Landfill
San Bernardino	Mid-Valley Sanitary Landfill
San Bernardino	Landers Sanitary Landfill
San Bernardino	USMC – 29 Palms Disposal Facility
San Bernardino	Fort Irwin Sanitary Landfill
San Bernardino	Mitsubishi Cement Plant Cushenbury L.F.
San Bernardino	San Timoteo Sanitary Landfill
Ventura	Toland Road Landfill
Ventura	Simi Valley Landfill & Recycling Center
Total	37

Source: CalRecycle 2023b

TRANSFER STATIONS

Similar to the landfills, transfer stations accept trash for disposal. There are six county operated transfer stations. These stations accept waste of various types including general refuse and wood and green waste depending on size with flat and volume rates applying. These facilities collect material that is then "transferred" to be recycled or to the nearest landfill site. While not as all-inclusive as a landfill, transfer stations provide a broad collection opportunity for local residents.

Table 3.19-9, Active Transfer Stations by SCAG County, identifies active transfer stations within the region.

TABLE 3.19-9 Active Transfer Stations by SCAG County

COUNTY	NUMBER OF ACTIVE TRANSFER STATIONS
Imperial	9
Los Angeles	99
Orange	56
Riverside	40
San Bernardino	47
Ventura	8
Total	259

Source: CalRecycle 2023b

WASTE DIVERSION AND RECYCLING

The California Integrated Waste Management Act of 1989 (Chapter 1095, Statutes of 1989) requires every city and county, as part of the Countywide Integrated Waste Management Plan, to prepare a Source Reduction and Recycling Element (SRRE) that identifies how each jurisdiction would meet the mandatory state waste diversion goals of 50 percent of all solid waste through source reduction, recycling, and composting activities. The 50 percent diversion requirement is measured in terms of per-capita disposal expressed as pounds per person per day. CalRecycle calculates per-capita disposal for all counties and jurisdictions to monitor the success of program implementation, actual recycling, and other diversion programs (CalRecycle 2023c).

HAZARDOUS WASTE

Hazardous waste is a waste with properties that make it potentially dangerous or harmful to human health or the environment. Hazardous wastes can be liquids, solids, or contained gases. California has only two hazardous waste landfills: the Kettleman Hills Facility in Kings County and the Buttonwillow landfill facility in Kern County. Wastewater is defined as water that contains wastes from residential, commercial, and industrial processes. Sewage, gray water, and industrially polluted discharges can all be categorized as wastewater. Within the SCAG region, wastewater is generally conveyed through the storm drain and sanitary sewer systems.

3.19.1.4 ENERGY AND TELECOMMUNICATIONS

ELECTRICITY

According to the California Public Utilities Commission (CPUC), as of 2018 California had a total of approximately 34,000 miles of overhead transmission lines and approximately 147,000 miles of overhead distribution lines, for a total of over 181,000 miles of overhead power lines (CPUC 2018). A total of approximately 600 miles of underground transmission lines and nearly 74,000 miles of underground distribution lines, for a total of over 74,000 miles of underground power lines (CPUC 2018). The main electric utility providers in the region include Southern California Edison, Imperial Irrigation District, San Diego Gas & Electric, and the Los Angeles Department of Water & Power.

NATURAL GAS

Southern California Gas Company (SoCalGas) is the primary natural gas service provider in the region and delivers about 2.8 billion cubic feet of natural gas a day to 20.9 million consumers connected through nearly 5.8 million gas meters for a wide variety of needs, ranging from cooking and space heating to electric generation (SoCalGas 2013). These natural gas deliveries are made possible through a network of pipelines and in-line facilities. Most of the natural gas consumed by SoCalGas' customers comes from natural gas production fields in New Mexico, west Texas and Oklahoma, as well as in the Rocky Mountains and Canada. The remaining natural gas supply percentage is produced locally in Central and Southern California from onshore and offshore fields. Typically, natural gas is gathered from individual production wells and then processed to remove liquids and other impurities to meet pipeline specifications. The natural gas is then transported to distribution systems throughout the U.S. by large, high-pressure transmission pipelines (SoCalGas 2013).

SoCalGas contracts for capacity on interstate pipelines to bring natural gas from out-of-state producing regions into California. When natural gas enters Southern California, it moves into the more than 101,000-mile pipeline system that is owned, operated, and maintained by SoCalGas (SoCalGas 2013). Large, high-pressure transmission pipelines transport natural gas supplies from the California-Arizona border and other receipt locations in Central

and Southern California to areas throughout the company's service territory. It then may be moved into underground storage, to be made available when it is needed (SoCalGas 2013).

Underground storage of natural gas plays a vital role in balancing the region's energy supply and demand. SoCal Gas owns and operates four underground storage facilities located in Aliso Canyon, Honor Rancho, Goleta, and Playa Del Rey. These facilities have a combined theoretical storage capacity of over 130 billion cubic feet (Bcf) (California Gas and Electric Utilities 2022). However, the combined working inventory for SoCalGas is reduced due to current working inventory regulatory restrictions imposed at Aliso Canyon. In July 2019, to improve short-term reliability and price stability in the southern California region, the CPUC deemed that Aliso Canyon be made available for withdrawals if certain conditions are met, such as an imminent and identifiable risk of gas curtailments created by an emergency condition that would impact public health and safety or result in curtailments of electric load that could be mitigated by withdrawals from Aliso Canyon (California Gas and Electric Utilities 2022).

TELECOMMUNICATIONS

Telecommunication services in the region are provided by various companies, including but not limited to major providers such as AT&T, Spectrum, Cox Communications, Verizon, and T-Mobile (Sprint Corporation). Telecommunication companies are regulated by CPUC. A wide array of products and telecommunication services for residential and commercial uses are offered by various companies, including internet services, wireless services, television technology using digital fiber optic technology, and satellite technology. With regard to wireless communications, the range and service for an individual service tower can vary; therefore, some towers located in the region likely also serve populations outside of region. All cellular towers and equipment are managed by private telecommunications service providers under the jurisdiction of the Federal Communications Commission (FCC). Communication systems located throughout the region include underground fiber optic cable, telephone transmission lines (overhead and underground), and cellular towers owned or leased by telecommunications service providers.

Landline telephone service in the region is provided by various commercial communication companies. The majority of the landline facilities are located in county- or city-owned rights-of-way and on private easements. Telecommunications lines are either copper wire or fiber optic cable and are routed overhead on utility poles and underground.

In addition to landline service, a large number of communication towers have been constructed throughout the region for cellular telephone service. Cellular towers have been erected along major travel corridors to meet emergency service objectives. Cellular service is available, to varying degrees, throughout the region with the exception of remote areas located away from major transportation facilities (e.g., mountains, deserts, other rural areas).

3.19.2 REGULATORY FRAMEWORK

3.19.2.1 WATER SUPPLY

FEDERAL

CLEAN WATER ACT/NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITS

The Clean Water Act (CWA) (33 USC Sections 1251 et seq.) was enacted by Congress in 1972 and has been amended several times since its adoption. It is the primary federal law regulating water quality in the U.S. Its objective is to reduce or eliminate water pollution in the nation's rivers, streams, lakes, and coastal waters. The CWA prescribes the basic federal laws for regulating discharges of pollutants and sets minimum water quality standards for all surface waters in the U.S. The CWA is administered by USEPA (USEPA 2023a).

In California, the State Water Resources Control Board (State Water Board) and the nine Regional Water Quality Control Boards (Regional Water Boards) implement many of the Clean Water Act's provisions. The Clean Water Act requires the State to adopt water quality standards and to submit those standards for approval by USEPA. For point source discharges to surface water, the Clean Water Act authorizes the USEPA and/or approved states (such as California) to administer the National Pollutant Discharge Elimination System (NPDES) program. The NPDES program regulates the discharge of pollutants from point sources. Municipal point sources consist primarily of municipal wastewater treatment plant outfalls and stormwater conveyance system outfalls. The Clean Water Act also establishes a loan program—the State Revolving Fund—for the implementation of water quality improvement projects.

SAFE DRINKING WATER ACT

Passed in 1974 and amended in 1986 and 1996, the Safe Drinking Water Act (SDWA) gives USEPA the authority to set drinking water standards. Drinking water standards apply to public water systems, which provide water for human consumption through at least 15 service connections, or regularly serve at least 25 individuals. There are two categories of drinking water standards, the National Primary Drinking Water Regulations (NPDWR) and the National Secondary Drinking Water Regulations. The NPDWR are legally enforceable standards that apply to public water systems. NPDWR standards protect drinking water quality by limiting the levels of specific contaminants that can adversely affect public health and are known or anticipated to occur in water (USEPA 2023b).

STATE

PORTER-COLOGNE WATER QUALITY CONTROL ACT

See discussion of the Porter Cologne Act under Section 3.19.2.2, *Regulatory Framework [Wastewater]*, above.

CALIFORNIA SAFE DRINKING WATER REGULATIONS

The SWRCB carries out the responsibilities as the federally designated primacy agency for the drinking water program in California (SWRCB 2021). This includes responsibility for the implementation of the federal SDWA. Additionally, the SWRCB carries out the responsibility for implementation of the California SDWA. The California SDWA (Sections 116270–116755 of the Health and Safety Code) is intended to ensure that the water delivered by public water systems of this state is at all times pure, wholesome, and potable, to improve upon the minimum requirements of the federal SDWA Amendments of 1996, to establish primary drinking water standards that are

at least as stringent as those established under the federal Safe Drinking Water Act, and to establish a program that is more protective of public health than the minimum federal requirements. This legislation also established a drinking water regulatory program within the SWRCB to provide for the orderly and efficient delivery of safe drinking water within the state and to give the establishment of drinking water standards and public health goals greater emphasis and visibility within the state (SWRCB 2021). These responsibilities are set forth in Chapter 4 of Part 12 (Drinking Water) of Division 104 (Environmental Health) of California H&S Code (Section 116270 et seq.) and Articles 1 and 2 of Group 4, of Subchapter 1 of Chapter 5 (Sanitation) of Division 1 (Department of Health Services) of Title 17 and Chapters 1 through 19 of Division 4 (Environmental Health) of Title 22 of the California Code of Regulations. The Division of Drinking Water (DDW) within the SWRCB carries out the drinking water regulatory responsibilities. DDW implements the federal SDWA and California regulations applicable to public water systems. This direct implementation of the program is carried out at the local and regional level by DDW District Offices and Local Primacy Agencies. The overall management, support and control of the program is accomplished through the larger management structure, ultimately under the SWRCB members (SWRCB 2021).

DDW includes the Environmental Laboratory Accreditation Program, which is responsible for accreditation of laboratories that analyze environmental samples for regulatory purposes, including drinking water laboratories performing analyses pursuant to the California SDWA. The Environmental Laboratory Accreditation Program is of critical importance to a range of programs other than drinking water within the SWRCB and other partner agencies. DDW is also responsible for adopting uniform criteria for the use of recycled water that is protective of public health. The Regional Water Boards or the Division of Water Quality within the SWRCB incorporate DDW-developed criteria in Water Reclamation Permits or Waste Discharge Requirements (see Section 3.10, *Hydrology and Water Quality*, for additional discussion), which set out the specific requirements that a water recycling project must meet. DDW and the Regional Water Boards/Division of Water Quality work cooperatively on regulating water recycling projects including those that are designed to augment drinking water supplies, including recharging groundwater supplies and augmenting surface water supplies such as reservoirs, as well as implementing statutory requirements with the goal of developing standards for the safe use of recycled water for direct potable reuse.

CALIFORNIA ADMINISTRATIVE CODE

California Administrative Code Title 24 contains the California Building Standards, including the California Plumbing Code (Part 5), promotes water conservation. Title 20 addresses Public Utilities and Energy and includes appliance efficiency standards that promote water conservation. In addition, a number of State laws listed below require water-efficient plumbing fixtures in structures:

- Title 20, California Administrative Code, Section 1604(g) establishes efficiency standards that give the maximum flow rate of all new showerheads, lavatory faucets, sink faucets, and tub spout diverters.
- Title 20 California Administrative Code Section 1606 prohibits the sale of fixtures that do not comply with established efficiency regulations.
- Title 24, California Administrative Code, Sections 25352(i) and (j) address pipe insulation requirements, which can reduce water used before hot water reaches equipment or fixtures. Insulation of water-heating systems is also required.
- Health and Safety Code Section 17921.3 requires low-flush toilets and urinals in virtually all buildings.

Under Title 22, the State Department of Health establishes State-wide effluent bacteriological and treatment reliability standards for recycled water uses. The standards are based on the potential for human contact with recycled water. The regional water quality control board (RWQCB) has established and enforces requirements for the

application and use of recycled water. Permits are required from a RWQCB for any recycling operation. Applicants for a permit are required to demonstrate that the proposed recycled water operation is in compliance with Title 22 and will not exceed the ground and surface water quality objectives in the regional basin management plan (DPH 2014).

THE WATER CONSERVATION ACT OF 2009

These sections of the Water Code, enacted as SB X7-7—The Water Conservation Act of 2009, set water conservation targets and efficiency improvements for urban and agricultural water suppliers, Sections 10608.16 and Sections 10608.48, respectively. The legislation establishes a State-wide target to reduce urban per capita water use by 20 percent by 2020. Urban retail water suppliers are required, individually or on a regional basis, to develop an urban water use target by December 31, 2010, to meet their target by 2020, and to meet an interim target (half of their 2020 target) by 2015. Urban water suppliers cannot impose conservation requirements on process water (water used in production of a product) and are required to employ two critical efficient water management practices—water measurement and pricing. Urban retail water suppliers must include in a water management plan, to have been completed by July 2011, the baseline daily per capita water use, water use target, interim water use target, and compliance daily per capita water use (DWR 2009).

CALIFORNIA URBAN WATER MANAGEMENT PLANNING ACT

This part of the State Water Code (Section 10610) states that each urban water supplier that provides water to 3,000 or more customers, or that provides over 3,000 AF of water annually, should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry years by preparing a UWMP and updating it every five years. The Act describes the contents of UWMPs and requires each agency's UWMP to assess the reliability of the agency's water resources over a 20-year planning horizon (DWR 2023b).

CALIFORNIA SENATE BILL 610

Referred to as SB 610, the intent of this part of the State Water Code is to ensure that sufficient water supplies are available for growing communities. Water Code Section 10910 requires any project subject to CEQA of a specified minimum size to require a local public water provider with more than 3,000 service connections to prepare a water supply assessment (WSA) for the project. The WSA must document sources of water supply, quantify water demands, and compare future water supply and demand to show that sufficient water will be available to serve the development project. Water supply must be assessed for normal, single dry, and multiple dry water years during a 20-year forecast. If supplies are found to be insufficient to serve the project, the WSA must include plans for acquiring sufficient supplies. The WSA must be included in the CEQA document for the project (DWR 2001).

CALIFORNIA SENATE BILL 221

SB 221 applies to subdivisions of more than 500 dwelling units (Water Code Section 10912). Like SB 610, it is intended to ensure an adequate water supply for new development. SB 221 requires that approval of a tentative map showing the design and improvement of a proposed subdivision shall include a requirement that a sufficient water supply is available (DWR 2001).

AB 685

On September 25, 2012, Governor Edmund G. Brown Jr. signed AB 685, making California the first state in the nation to legislatively recognize the human right to water. Water Code Section 106.3 recognizes that "every human

being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.” The human right to water extends to all Californians, including disadvantaged individuals and groups and communities in rural and urban areas.

CALIFORNIA GROUNDWATER MANAGEMENT ACT

The Groundwater Management Act (AB 3030, Water Code Sections 10750 et seq.) provides guidance for applicable local agencies to develop voluntary groundwater management plans in State-designated groundwater basins. Groundwater management plans can allow agencies to raise revenue to pay for measures influencing the management of the basin, including extraction, recharge, conveyance, facilities’ maintenance, and water quality (DWR 1992).

SUSTAINABLE GROUNDWATER MANAGEMENT ACT

In 2014, the California State Legislature approved a combination of bills that together formed the Sustainable Groundwater Management Act (SGMA). SGMA requires the formation of local Groundwater Sustainability Agencies (GSAs) that must develop Groundwater Sustainability Plans (GSPs) for medium or high priority groundwater basins in California by 2022. These plans must quantify basin characteristics and supplies and must establish management actions and projects to achieve basin sustainability within 20 years of implementation (by 2042). The SGMA imposes many new monitoring and reporting requirements, and other procedural and substantive mandates related to groundwater management.

CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE

The California Model Water Efficient Landscape Ordinance (MWELo) sets restrictions on outdoor landscaping. Because the City of Lincoln is a “local agency” under the MWELo, it must require project applicants to prepare plans consistent with the requirements of the MWELo for review and approval by the City. The MWELo was most recently updated by the Department of Water Resources and approved by the California Water Commission on July 15, 2015. All provisions became effective on February 1, 2016. The revisions, which apply to new construction with a landscape area greater than 500 square feet, reduced the allowable coverage of high-water-use plants to 25 percent of the landscaped area. The MWELo also requires use of a dedicated landscape meter on landscape areas for residential landscape areas greater than 5,000 square feet or nonresidential landscape areas greater than 1,000 square feet, and requires weather-based irrigation controllers or soil-moisture based controllers or other self-adjusting irrigation controllers for irrigation scheduling in all irrigation systems (California Code of Regulations, Title 23, Division 2, Chapter 2.7).

GOVERNOR’S EXECUTIVE ORDER B-29-15 ISSUED ON APRIL 1, 2015

Key provisions of Executive Order B-29-15 included ordering the State Water Resources Control Board to impose restrictions to achieve a 25-percent reduction in potable urban water usage through February 28, 2016; directing DWR to lead a statewide initiative, in partnership with local agencies, to collectively replace 50 million square feet of lawns and ornamental turf with drought tolerant landscapes, and directing the California Energy Commission to implement a statewide appliance rebate program to provide monetary incentives for the replacement of inefficient household devices (SWRCB 2015).

GOVERNOR'S EXECUTIVE ORDER N-79-20

See discussion of EO N-79-20 in Section 3.3, *Air Quality*, and under Section 3.19.2, *Regulatory Framework* [Wastewater], above.

EXECUTIVE ORDER N-8-23

On July 10, 2023, Governor Newsom issued Executive Order N-8-23, creating an Infrastructure Strike Team to work across state agencies to maximize federal and state funding opportunities for California innovation and infrastructure projects. Executive Order N-8-23 has the potential to facilitate coordinated and streamlined project review and permitting processes in California, as well as the development of a robust California-specific project tracking system. Under the order, the Infrastructure Strike Team is tasked with identifying priority infrastructure projects; supporting governmental coordination on review, permitting, and approvals; and creating working groups focused on specific project categories, such as transportation, energy, hydrogen, environmental remediation, broadband, water, and zero-emission vehicles. The order's approach is similar to that taken in the federal Fixing America's Surface Transportation Act, designed to improve the timeliness, predictability, and transparency of the federal environmental review and authorization process for covered infrastructure projects. The Infrastructure Strike Team is also tasked with holding government oversight bodies accountable to "deliver results in an expedited and effective fashion" and establishing dashboards to track the progress of priority projects, including milestones, funding, federal application deadlines, workforce development, and progress toward equity goals.

REGIONAL

The water quality control plans and groundwater protection responsibilities for the SCAG region are described in Section 3.10, *Hydrology and Water Quality*.

MWD PLANS

MWD 2020 INTEGRATED RESOURCES PLAN

MWD's 2020 Integrated Resources Plan (MWD 2020 IRP) anticipates how much water Southern California can expect from its imported and local supplies, and forecasts regional water demands (MWD 2020). Understanding the gap between supplies and demand helps set the targets to maintain reliability and inform the MWD board on what actions MWD and its member agencies can take to close that gap. While past plans looked at a single forecast, given all the uncertainties regarding water supplies in the region, the MWD 2020 IRP looks at multiple scenarios that could plausibly unfold in the future. From these collaborative exercises, MWD is investigating resources, policies, and investments needed to maintain reliable water supplies through 2045 and is developing an adaptive management strategy along with a series of performance measures and reality checks to help inform what plausible future the region is heading towards, so that plans can be adjusted as needed.

The first step in the MWD 2020 IRP process was to identify the uncertain factors that could challenge or benefit Southern California's water supply, including climate change, economics and demographics, legislation and regulations, federal and state support, technological advances in water, and aging infrastructure. With these potential impacts in mind, MWD then developed four scenarios looking at how these factors could play out in each situation, promoting greater understanding of the wider range of potential outcomes. These scenarios include:

- Scenario A: Gradual climate change impacts, low regulatory impacts and slow economic growth

- Scenario B: Gradual climate change impacts, low regulatory impacts, high economic growth
- Scenario C: Severe climate change impacts, high regulatory impacts, slow economic growth
- Scenario D: Severe climate change impacts, high regulatory impacts, and high economic growth

The MWD 2020 IRP evaluates the gap between expected water supplies and how much water the region will need in each scenario. Using insight from the gap analysis, the MWD 2020 IRP then identifies solutions and policies that address the outcomes of each scenario, promoting reliability despite the uncertainty of the future.

MWD 2020 REGIONAL URBAN WATER MANAGEMENT PLAN

MWD's 2020 UWMP (MWD 2021a) was prepared in compliance with the California Water Code (CWC). The 2020 UWMP provides an assessment of MWD's water service reliability, describes and evaluates sources of water supply, efficient uses of water, demand management measures, implementation strategy and schedule, and other relevant information and programs. In addition to the water reliability assessments, the 2020 UWMP includes an evaluation of frequent and severe periods of droughts, as described in the Drought Risk Assessment, and the preparation and adoption of the Water Shortage Contingency Plan (WSCP; see discussion below). MWD's 2020 UWMP was developed as part of the 2020 IRP planning process and provides a representation of Metropolitan's planning elements reported under the conditions required by the Act. The IRP represents MWD's comprehensive planning process and will serve as MWD's blueprint for long-term water reliability, including key supply development and water use efficiency goals. Together, these plans serve as the reliability roadmap for the region. The planning process involved extensive coordination with Southern California's water agencies, municipal service providers, and public planning agencies. MWD's Board of Directors provided oversight throughout the ongoing process for the development of the 2020 IRP that informed the preparation of the 2020 UWMP. MWD's outreach efforts sought to engage the general public, businesses, environmental organizations, diverse communities, cities, counties, and other stakeholders with an interest in the future of Southern California's water supplies. The information included in the 2020 UWMP represents the most current and available planning projections of supply capability and demand forecasts developed through a collaborative process with the member agencies. As with MWD's previous plans, the 2020 UWMP does not explicitly discuss specific activities undertaken by its member agencies unless they relate to one of MWD's water demand or supply management programs. Presumably, each member agency will discuss these activities in its UWMP.

MWD WATER SHORTAGE CONTINGENCY PLAN

MWD's Water Shortage Contingency Plan (WSCP) (MWD 2021b) complies with CWC Section 10632, which requires that every urban water supplier prepare and adopt a WSCP as part of its 2020 UWMP. Section 10632.2 provides, "An urban water supplier shall follow, where feasible and appropriate, the prescribed procedures and implement determined shortage response actions in its water shortage contingency plan...or reasonable alternative actions, provided that descriptions of the alternative actions are submitted with the annual water shortage assessment report pursuant to Section 10632.1." Notwithstanding, the CWC does not prohibit an urban water supplier from taking actions not specified in its WSCP, if needed, without having to formally amend its UWMP or WSCP. The WSCP is a guide for MWD's intended actions during water shortage conditions. It is meant to improve preparedness for droughts and other impacts on water supplies by describing the process used to address varying degrees of water shortages. Certain elements of the WSCP are required by the CWC, including response actions that align with six standard water shortage levels based on water supply conditions, as well as shortages resulting from catastrophic supply interruptions. The WSCP also describes MWD's procedures for conducting an Annual Water Supply and Demand Assessment (Annual Assessment) that is required by CWC Section 10632.1 and is to be submitted to the DWR on or before July 1 of each year, or within 14 days of receiving final allocations from the

SWP, whichever is later. MWD's WSCP is included as Appendix 4 to its 2020 UWMP, discussed above, which was submitted to DWR by July 1, 2021. However, the WSCP is created separately from MWD's 2020 UWMP and can be amended, as needed, without amending the UWMP.

URBAN WATER MANAGEMENT PLANS

Under California Water Code Division 6, Part 2.6, Section 10610–10656, the Urban Water Management Planning Act requires urban water suppliers that supply more than 3,000 acre-feet of water annually, or serve more than 3,000 connections, to submit an Urban Water Management Plan (UWMP). The UWMP is a public document prepared by water suppliers to support their long-term resource planning over a 20-year period and ensure adequate water supplies are available to meet existing and future water demands. The UWMP must be submitted to the DWR every 5 years, and must demonstrate progress toward reduction in 20 percent per capita urban water consumption by the year 2020, as required in the Water Conservation Bill of 2009, Senate Bill X7-7. There are 138 service districts in the SCAG region required to develop a UWMP, which is typically prepared and submitted to DWR within 30 days and reviewed 60 days prior to public hearing for plan adoption and implementation. The preparation of the plan includes guidebook, workshops, and programming for comprehensive strategies to conserve water.

LOCAL

UTILITY MASTER PLANS & UTILITY CAPITAL IMPROVEMENT PROGRAMS

Jurisdictions usually have utility master plans or other planning documents that identify and prioritize projects needed to maintain adequate levels of utility service in the jurisdiction. The Metropolitan Water District most recently updated its Integrated Water Resources Plan in 2020. The City of Los Angeles prepared One Water LA in 2017. Each local water provider prepares facility master plans that outline capital improvement projects that identify water demands, conservation measures, efficiency measures, and local source augmentation.

GENERAL PLANS

Local policies related to utilities and service systems are established in each jurisdiction's general plan. In general, jurisdictions have policies in place that state that utility and service systems must be provided at the same time (or in advance of) need. In addition to these general policies, jurisdictions may have more specific policies tailored to performance objectives including wastewater treatment services.

3.19.2.2 WASTEWATER

FEDERAL

CLEAN WATER ACT/NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITS

The Clean Water Act (CWA) (33 USC Sections 1251 et seq.) was enacted by Congress in 1972 and has been amended several times since its adoption. It is the primary federal law regulating water quality in the U.S. Its objective is to reduce or eliminate water pollution in the nation's rivers, streams, lakes, and coastal waters. The CWA prescribes the basic federal laws for regulating discharges of pollutants and sets minimum water quality standards for all surface waters in the U.S. The CWA is administered by USEPA (USEPA 2002).

In California, the State Water Resources Control Board (State Water Board) and the nine Regional Water Quality Control Boards (Regional Water Boards) implement many of the Clean Water Act's provisions. The Clean Water Act requires the State to adopt water quality standards and to submit those standards for approval by USEPA. For point source discharges to surface water, the Clean Water Act authorizes the USEPA and/or approved states (such as California) to administer the National Pollutant Discharge Elimination System (NPDES) program. The NPDES program regulates the discharge of pollutants from point sources. Municipal point sources consist primarily of municipal wastewater treatment plant outfalls and stormwater conveyance system outfalls. The Clean Water Act also establishes a loan program—the State Revolving Fund—for the implementation of water quality improvement projects.

MS4 PERMIT GUIDANCE PROVISION C.3

On May 17, 1996, USEPA published an Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems, which provided guidance on permit application requirements for regulated MS4s. MS4 permits include requirements for post-construction control of stormwater runoff in what is known as Provision C.3. The goal of Provision C.3 is for the Permittees to use their planning authorities to include appropriate source control, site design, and stormwater treatment measures in new development and redevelopment projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects. This goal is to be accomplished primarily through the implementation of low-impact development (LID) techniques (GPO 1996).

STATE

PORTER-COLOGNE WATER QUALITY CONTROL ACT

The Porter-Cologne Act is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and nonpoint sources of pollution. Pursuant to the Porter-Cologne Act (California Water Code section 13000 et seq.), the policy of the State is as follows:

- That the quality of all the waters of the state shall be protected;
- That all activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason; and
- That the State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the state from degradation.

The Porter-Cologne Act established nine Regional Water Boards (based on hydrogeologic barriers) and the State Water Board, which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The State Water Board provides program guidance and oversight, allocates funds, and reviews Regional Water Boards decisions. In addition, the State Water Board allocates rights to the use of surface water. The Regional Water Boards have primary responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The State Water Board and Regional Water Boards have numerous NPS-related responsibilities, including monitoring and assessment, planning, financial assistance, and management.

The Regional Water Boards regulate discharges under the Porter-Cologne Act primarily through issuance of NPDES permits and waste discharge requirements (WDRs for point and nonpoint source discharges. Anyone

discharging or proposing to discharge materials that could affect water quality (other than to a community sanitary sewer system regulated by an NPDES permit) must file a report of waste discharge.

The Porter-Cologne Act also implements many provisions of the Clean Water Act, such as NPDES permitting program. Section 401 of the Clean Water Act gives the State Water Board the authority to review any proposed federally permitted or federally licensed activity that may impact water quality and to certify, condition, or deny the activity if it does not comply with State water quality standards.

The Porter-Cologne Act also requires adoption of water quality control plans (basin plans) that contain the guiding policies of water pollution management in California. A number of statewide water quality control plans have been adopted by the State Water Board. In addition, regional basin plans have been adopted by each of the Regional Water Boards and get updated as needed. These plans identify the existing and potential beneficial uses of waters of the state and establish water quality objectives to protect these uses. The basin plans also contain implementation, surveillance, and monitoring plans. Statewide and regional water quality control plans include enforceable prohibitions against certain types of discharges, including those that may pertain to nonpoint sources. Portions of water quality control plans, the water quality objectives and beneficial use designations, are subject to review by USEPA, when approved they become water quality standards under the Clean Water Act (SWWRCB 2019a).

CALIFORNIA OCEAN PLAN

The California Ocean Plan establishes water quality objectives for California's ocean waters and provides the basis for regulation of wastes discharged into the state's coastal waters. The plan applies to point and nonpoint source discharges. Both the SWRCB and the six coastal RWQCBs implement and interpret the California Ocean Plan. The California Ocean Plan identifies the applicable beneficial uses of marine waters. These beneficial uses include preservation and enhancement of designated Areas of Special Biological Significance, rare and endangered species, marine habitat, fish migration, fish spawning, shellfish harvesting, recreation, commercial and sport fishing, mariculture, industrial water supply, aesthetic enjoyment, and navigation.

The California Ocean Plan establishes a set of narrative and numerical water quality objectives to protect beneficial uses. These objectives are based on bacterial, physical, chemical, and biological characteristics as well as radioactivity. The water quality objectives in Table 1 (formerly Table B) of the California Ocean Plan apply to all receiving waters under the jurisdiction of the plan and are established for the protection of aquatic life and for the protection of human health from both carcinogens and noncarcinogens. Within Table 1 there are 21 objectives for protecting aquatic life, 20 for protecting human health from noncarcinogens, and 42 for protecting human health from exposure to carcinogens. The Ocean Plan also includes an implementation program for achieving water quality objectives. Effluent limitations are established for the protection of marine waters (SWRCB 2015).

STRATEGY TO OPTIMIZE RESOURCE MANAGEMENT OF STORM WATER (STORMS)

In April 2018, the California State Water Resources Control Board published the STORMS report to advance the ideology that storm water is a valuable resource. The report explores policies for collaborative watershed level storm water management and pollution prevention, obstacles to funding and barriers to development. It also describes the importance of integrating regulatory and non-regulatory interests and how raised awareness of the benefits of storm water management invokes participation and enthusiasm with regards to this little-explored resource (SWRCB 2023b).

NPDES GENERAL PERMITS

CONSTRUCTION GENERAL PERMIT

The California Construction Stormwater Permit (Construction General Permit) 1 (also, known as Industrial General Permit), adopted by the State Water Resources Control Board (SWRCB), regulates construction activities that include clearing, grading, and excavation resulting in soil disturbance of at least one acre of total land area. The Construction General Permit authorizes the discharge of stormwater to surface waters from construction activities. It prohibits the discharge of materials other than stormwater and authorized non-stormwater discharges and all discharges that contain a hazardous substance in excess of reportable quantities established in Title 40, Sections 117.3 or 302.4 of the CFR, unless a separate National Pollution Discharge Elimination System (NPDES) permit has been issued to regulate those discharges. The Construction General Permit requires that all developers of land where construction activities will occur over more than 1 acre do the following:

- Complete a risk assessment to determine pollution prevention requirements pursuant to the three risk levels established in the General Permit;
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the US;
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies BMPs that will reduce pollution in stormwater discharges to the Best Available Technology Economically Achievable/ Best Conventional Pollutant Control Technology standards; and
- Perform inspections and maintenance of all BMPs.

To obtain coverage under the NPDES Construction General Permit, the Legally Responsible Person must electronically file all permit registration documents with the SWRCB before the start of construction. Permit registration documents must include:

- Notice of Intent
- Risk Assessment
- Site Map
- SWPPP
- Annual Fee
- Signed Certification Statement

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address post construction runoff quantity (volume) and quality (treatment). The SWPPP must also include a discussion of the program to inspect and maintain all BMPs (SWRCB 2009).

INDUSTRIAL GENERAL PERMIT

The Statewide General Permit for Storm Water Discharges Associated with Industrial Activities, Order 2014-0057-DWQ (Industrial General Permit or IGP) implements the federally required storm water regulations in California for storm water associated with industrial activities discharging to waters of the United States (SWRCB 2023c).

MUNICIPAL STORMWATER PROGRAM

The Municipal Storm Water Program regulates storm water discharges from MS4s throughout California. Pursuant to the Federal Water Pollution Control Act (Clean Water Act) section 402(p), storm water permits are required for discharges from an MS4 serving a population of 100,000 or more. The Municipal Storm Water Program manages the Phase I Permit Program (serving municipalities over 100,000 people), the Phase II Permit Program (for municipalities less than 100,000), and the Statewide Storm Water Permit for the State of California Department of Transportation (Caltrans) (SWRCB 2023d).

Caltrans is responsible for the design, construction, management, and maintenance of the State highway system, including freeways, bridges, tunnels, Caltrans' facilities, and related properties, and is subject to the permitting requirements of CWA Section 402(p). Caltrans' discharges consist of storm water and non-storm water discharges from state-owned rights-of-way.

Before July 1999, discharges from Caltrans' MS4 were regulated by individual NPDES permits issued by the RWQCBs. On July 15, 1999, the SWRCB issued a statewide permit (Order No. 99-06-DWQ) that regulated all discharges from Caltrans MS4s, maintenance facilities, and construction activities (Caltrans 2023). On September 19, 2012, Caltrans' permit was reissued (Order No. 2012-0011-DWQ), and it became effective on July 1, 2013 (SWRCB 2013).

The Caltrans permit requires development of a program for communication with local agencies, and coordination with other MS4 programs where those programs overlap geographically with Caltrans facilities. As part of the permit, Caltrans is required to create and annually update a Stormwater Management Plan (SWMP) that is used to outline the regulation of pollutant discharge caused by current and future construction and maintenance activities. SWMP requirements apply to discharges from Caltrans stormwater conveyances, including catch basins and drain inlets, curbs, gutters, ditches, channels, and storm drains. The SWMP applies to discharges consisting of stormwater and non-stormwater resulting from the following:

- Maintenance and operation of state-owned highways, freeways, and roads
- Maintenance facilities
- Other facilities with activities that have the potential for discharging pollutants
- Permanent discharges from subsurface dewatering
- Temporary dewatering
- Construction activities

Caltrans' SWMP describes the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters. The SWMP was most recently updated in July of 2016 (Caltrans 2016).

CALIFORNIA DEPARTMENT OF TRANSPORTATION NPDES PERMIT

The California Department of Transportation (Caltrans) was originally issued a statewide NPDES permit (Order 99-06-DWQ) in 1999, which requires Caltrans to regulate nonpoint source discharge from its properties, facilities, and activities. The Caltrans permit requires development of a program for communication with local agencies, and coordination with other MS4 programs where those programs overlap geographically with Caltrans facilities. As part of the permit, Caltrans is required to create and annually update a stormwater management plan (SWMP) that is used to outline the regulation of pollutant discharge caused by current and future construction and

maintenance activities. SWMP requirements apply to discharges from Caltrans stormwater conveyances, including catch basins and drain inlets, curbs, gutters, ditches, channels, and storm drains. The SWMP applies to discharges consisting of stormwater and non-stormwater resulting from:

- Maintenance and operation of state-owned highways, freeways, and roads
- Maintenance facilities
- Other facilities with activities that have the potential for discharging pollutants
- Permanent discharges from subsurface dewatering
- Temporary dewatering
- Construction activities

The discharges addressed by the SWMP flow through municipal stormwater conveyance systems or flow directly to surface water bodies in the state. These surface water bodies include creeks, rivers, reservoirs, lakes, wetlands, lagoons, estuaries, bays, and the Pacific Ocean and tributaries.

This SWMP applies to the oversight of outside agencies' or non-Caltrans entities' (third parties) activities performed within Caltrans' MS4 to ensure compliance with stormwater regulations. Non-Caltrans activities include highway construction and road improvement projects, as well as residential use and business operations on leased property.

The SWMP must be approved by the SWRCB and, as specified in the permit, it is an enforceable document. Compliance with the permit is measured by implementation of the SWMP. Caltrans' policies, manuals, and other guidance related to storm water are intended to facilitate implementation of the SWMP. Caltrans also requires all contractors to prepare and implement a program to control water pollution effectively during the construction of all projects. In lieu of the more recently adopted General Construction Permit as described above, Caltrans continues to modify its current policies and procedures to be consistent with the new permit (Caltrans 2016).

CALIFORNIA ADMINISTRATIVE CODE, TITLE 22

Under Title 22, the State Department of Health establishes State-wide effluent bacteriological and treatment reliability standards for recycled water uses. The standards are based on the potential for human contact with recycled water. The regional water quality control board (RWQCB) has established and enforces requirements for the application and use of recycled water. Permits are required from a RWQCB for any recycling operation. Applicants for a permit are required to demonstrate that the proposed recycled water operation is in compliance with Title 22 and will not exceed the ground and surface water quality objectives in the regional basin management plan (WEF 2023b).

REGIONAL

The water quality control plans and groundwater protection responsibilities for the SCAG region are described in Section 3.10, *Hydrology and Water Quality*.

URBAN WATER MANAGEMENT PLANS

Under California Water Code Division 6, Part 2.6, Section 10610 -10656, the Urban Water Management Planning Act requires urban water suppliers that supply more than 3,000 acre-feet of water annually, or serve more than 3,000 connections, to submit an Urban Water Management Plan (UWMP). The UWMP is a public document prepared by water suppliers to support their long-term resource planning over a 20-year period and ensure

adequate water supplies are available to meet existing and future water demands. The UWMP must be submitted to the DWR every 5 years and must demonstrate progress toward reduction in 20 percent per capita urban water consumption by the year 2020, as required in the Water Conservation Bill of 2009, Senate Bill X7-7 (DWR 2023a, 2023b). There are 138 service districts in the SCAG region required to develop a UWMP, which is typically prepared and submitted to DWR within 30 days and reviewed 60 days prior to public hearing for plan adoption and implementation. The preparation of the plan includes guidebook, workshops, and programming for comprehensive strategies to conserve water.

LOCAL

UTILITY MASTER PLANS & UTILITY CAPITAL IMPROVEMENT PROGRAMS

Jurisdictions usually have utility master plans or other planning documents that identify and prioritize projects needed to maintain adequate levels of utility service in the jurisdiction. The City of Los Angeles prepared the Integrated Resources Plan for water, wastewater, and stormwater in 2006. This was updated by the One Water LA series of Master Plans in 2017. The City of Los Angeles operates several treatment facilities including the Tillman water reclamation plant and Hyperion water reclamation plant on the coast. Similarly, the County Sanitation Districts of Los Angeles County (LACSD) operate several large, integrated wastewater treatment systems including the Joint Water Pollution Control Plant in Carson. LACSD has prepared and regularly updates Master Plans for each of their facilities to ensure the capacity is appropriate for the local wastewater treatment demands. Other large scale wastewater treatment utility districts in the SCAG region that regularly update facility master plans include the Orange County Sanitation District which operates two treatment plants in Orange County that discharge to the ocean; the Inland Empire Utilities Agency which operates several treatment facilities in southwest San Bernardino County; Eastern Municipal Water District, Western Municipal Water District, and Coachella Valley Water District in Riverside County; and the Las Virgenes Municipal Water District in Los Angeles County.

GENERAL PLANS

Local policies related to utilities and service systems are established in each jurisdiction's general plan. In general, jurisdictions have policies in place that state that utility and service systems must be provided at the same time (or in advance of) need. In addition to these general policies, jurisdictions may have more specific policies tailored to performance objectives including wastewater treatment services.

3.19.2.3 SOLID WASTE

FEDERAL

RESOURCE CONSERVATION AND RECOVERY ACT OF 1976

Subtitle D of the Resource Conservation and Recovery Act of 1976 (42 USC Section 6901 et seq.), focuses on state and local governments as the primary planning, regulating, and implementing entities for the management of non-hazardous solid waste, such as household garbage and nonhazardous industrial solid waste (USEPA 2023b). To promote the use of safer units for solid waste disposal, Subtitle D provides regulations for the generation, transportation, and treatment, storage, or disposal of hazardous wastes. USEPA developed federal criteria for the proper design and operation of municipal solid waste landfills and other solid waste disposal facilities, but state and local governments are the primary planning, permitting, regulating, implementing, and enforcement agencies for management and disposal subject to approval by USEPA (USEPA 2023c). USEPA approved the State of California's program, a joint effort of the CIWMB, SWRCB, RWQCBs, and LEAs, on October 7, 1993.

STATE

CALIFORNIA INTEGRATED WASTE MANAGEMENT ACT

As many of the landfills in the state are approaching capacity and the siting of new landfills becomes increasingly difficult, the need for source reduction, recycling, and composting has become readily apparent. In response to this increasing solid waste problem, in September 1989 the state assembly passed Assembly Bill 939, known as the California Integrated Waste Management Act. This statute emphasizes conservation of natural resources through the reduction, recycling and reuse of solid waste. Assembly Bill 939 required cities and counties in the state to divert 25 percent of their solid waste stream from landfills by 1995 and 50 percent by year 2000 or face potential fines of millions of dollars per year. In 2008, the California Integrated Waste Management Act also requires that all cities conduct a Solid Waste Generation Study and prepare a Source Reduction Recycling Element.

AB 939 established CalRecycle. The purpose was to direct attention to the increasing waste stream and decreasing landfill capacity, and to mandate a reduction of waste being disposed. All jurisdictions were required to meet diversion goals of 25 percent by 1995 and 50 percent by the year 2000. A disposal reporting system was established with CalRecycle oversight, facility and program planning was required, and cities and counties began to address waste problems (CalRecycle 2023d).

AB 341 (Chapter 476, Statutes of 2011) established a statewide goal to reduce, recycle, or compost at least 75 percent of solid waste by 2020. AB 341 also requires local jurisdictions to implement commercial recycling programs to divert recyclable material away from landfills and required commercial generators and multi-family residences to arrange for recycling services starting in 2012 (CalRecycle 2023e).

AB 2020 – THE CALIFORNIA BOTTLE BILL

AB 2020 (Public Resources Code Section 14500 et seq.) took effect in 1987 as litter prevention legislation. At present, the minimum refund value established for each type of eligible beverage container is 5 cents for each container under 24 ounces and 10 cents for each container 24 ounces or greater (California Legislature 2017).

SB 20 ELECTRONIC WASTE “E-WASTE” RECYCLING

SB 20 (Public Resources Code Section 42460 et seq.) was signed in September of 2003; it establishes a system to recycle computers, TVs, and other video display devices (known as electronic waste) when they reach their end-of-life. Fees are collected from consumers at point of purchase to fund recycling programs.

AB 2901 – CELL PHONE RECYCLING

AB 2901 (Public Resources Code Section 42490 et seq.) was signed into law on September 29, 2004. It requires all cell phone retailers to take back used cell phones for recycling at no charge to the customer.

AB 2449 AND SB 270 – PLASTIC BAG RECYCLING

Adopted in 2006, AB 2449 (Chapter 845, Statutes of 2006) requires all California grocery stores to take back and recycle plastic grocery bags. The bill also requires retailers to provide consumers with a bag reuse opportunity by providing reusable bags which can be purchased and used in lieu of disposable ones.

Many cities and counties have adopted plastic bag ordinances. SB 270 of 2014 (Chapter 850, Statutes of 2014) established a statewide prohibition on the sale or distribution of single-use carryout plastic bags in grocery stores

and pharmacies, convenience food stores, and food marts. Retailers must charge customers at least 10 cents to buy a recycled paper bag or reusable grocery bag. A referendum to repeal this law failed in the November 2016 election.

AB 341 - SOLID WASTE DIVERSION RULE

Under commercial recycling law (Chapter 476, Statutes of 2011), Assembly Bill (AB) 341, directed CalRecycle to develop and adopt regulations for mandatory commercial recycling. The final regulation was approved by the Office of Administrative Law on May 7, 2012. AB 341 declared a policy goal of the state that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020.

ASSEMBLY BILL 2675

Adopted in 2014, AB 2675 (Chapter 617, Statutes of 2014) requires each state agency to ensure that at least 75% of reportable purchases are recycled products on and after January 1, 2020, with exception to paint, antifreeze, and tires.

ASSEMBLY BILL 1045

Adopted in 2015, AB 1045 (Chapter 596, Statutes of 2015) requires the California Environmental Protection Agency (Cal EPA) in coordination with CalRecycle, the State Water Resources Control Board, CARB, and the Department of Food and Agriculture to develop and implement policies to aid in diverting organic waste from landfills with the goal of reducing at least 5 million metric tons of GHG emissions per year.

SENATE BILL 1383

Adopted in 2016, SB 1383 (Chapter 395, Statutes of 2016) requires the California Air Resources Board (CARB) to approve and implement a comprehensive strategy to reduce short-living GHG pollutants in organic waste landfills to achieve a 40% reduction in methane, 40% reduction in hydrofluorocarbon gases, and a 50% reduction in anthropogenic black carbon by 50% below 2013 levels by 2030. SB 1383 also requires CARB, in consultation with the Department of Food and Agriculture, to adopt regulations to reduce methane emissions from livestock and dairy manure management operations.

In response to SB 1383, CalRecycle developed the Short-Lived Climate Pollutants: Organic Waste Reductions strategy, which proposes a series of strategies and requirements to reduce methane emissions from organic waste. Strategies include maintaining a list of food recovery organizations, public outreach, and specific bin requirements (CalRecycle 2023f). CalRecycle has developed regulations to reduce disposal of organic waste by 75 percent of 2014 levels by 2025. Beginning in 2022, SB 1383 requires every jurisdiction to provide organic waste collection services to all residents and businesses.

ASSEMBLY BILL 2153 - LEAD-ACID BATTERY RECYCLING ACT

Adopted in 2016, AB 2153 (Chapter 666, Statutes of 2016) updates the current law regarding the disposing of a lead-acid battery and creates numerous requirements related to lead-acid batteries. Some of these requirements include: starting April 2017, a \$1 fee on both consumers and manufacturers of lead-acid batteries; in 2022, the fee to consumers increased to \$2 and the fee to manufacturers will be eliminated; creates the Lead-Acid Battery Clean-Up Fund; and require dealers to charge consumers a refundable deposit for new lead-acid batteries.

ASSEMBLY BILL 1250

Adopted in 2016, AB 1250 (Chapter 861, Statutes of 2016) requires plastic beverage containers subject to the California Redemption Value to report to CalRecycle the amount of virgin plastic and postconsumer recycled plastic used by the manufacturer for plastic CRV-eligible beverages sold within the state (CalRecycle 2023g).

TITLE 14, CALIFORNIA CODE OF REGULATIONS, DIVISION 7

CalRecycle regulations pertaining to nonhazardous waste management in California include minimum standards for solid waste handling and disposal; regulatory requirements for composting operations; standards for handling and disposal of asbestos containing waste; resource conservation programs; enforcement of solid waste standards and administration of solid waste facility permits; permitting of waste tire facilities and waste tire hauler registration; special waste standards; used oil recycling program; electronic waste recovery and recycling; planning guidelines and procedures for preparing, revising, and amending countywide IWMP; and solid waste cleanup program (California Code of Regulations, Title 14, Division 7).

TITLE 22, CALIFORNIA CODE OF REGULATIONS, DIVISION 4.5

Hazardous waste generation, handling and disposal regulations in California are outlined in the [California Health & Safety Code](#), Division 20, Chapter 6.5 (Hazardous Waste Control Law). Regulations are included in the [California Code of Regulations, Division 4.5, Title 22](#).

TITLE 27, CALIFORNIA CODE OF REGULATIONS, ENVIRONMENTAL PROTECTION, DIVISION 2, SOLID WASTE

CalRecycle and the SWRCB jointly issue regulations pertaining to waste disposal on land, including criteria for all waste management units, facilities and disposal sites; documentation and reporting; enforcement, financial assurance; and special treatment, storage, and disposal units (California Code of Regulations, Title 27, Division 2).

2016 CALIFORNIA GREEN BUILDING STANDARD CODE

The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the California Department of Housing and Community Development in 2008. The purpose of this code is to improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices including recycling of construction (diversion of 50 percent) and other waste streams (CBSC 2022).

THE CALIFORNIA UNIVERSAL WASTE LAW

Special laws and regulations pertain to disposal of universal waste. (California Code of Regulations, Title 22, Section 66260 et seq.) Examples of universal wastes are batteries, fluorescent tubes, and some electronic devices, that contain mercury, lead, cadmium, copper, and other substances hazardous to humans and the environment. Universal waste cannot be disposed in solid waste landfills. Rather, universal wastes can be recycled. Recycling requirements are less stringent than those of other hazardous wastes to encourage recycling and recovery of valuable metals.

CALIFORNIA SOLID WASTE REUSE AND RECYCLING ACT

The California Solid Waste Reuse and Recycling Act of 1991 (Pub. Res. Code Sections 42900-42901) was enacted to assist local jurisdictions with accomplishing the goals of AB 939. In accordance with AB 2176, any development project that has submitted an application for a building permit must include adequate, accessible areas for the collection and loading of recyclable materials. Furthermore, the areas to be utilized must be adequate in capacity, number, and distribution to serve the proposed project. Moreover, the collection areas are to be located as close to existing exterior refuse collection areas as possible.

LOCAL

COUNTYWIDE INTEGRATED WASTE MANAGEMENT PLAN

Counties are required to prepare and submit to CalRecycle an integrated waste management plan which includes all SRRE, all Household Hazardous Waste Element (HHWE), a Countywide Siting Element, all Non-Disposal Facility Elements (NDFE), all applicable Regional SRREs, HHWEs. Public Resources Code Section 41751 requires that a countywide integrated waste management plan include a summary of significant waste management problems facing the county or city. The plan is required to provide an overview of the specific steps that will be taken by local agencies, acting independently and in concert, to achieve the purposes of this division. The plan is required to contain a statement of the goals and objectives set forth by the countywide task force.

SOURCE REDUCTION AND RECYCLING ELEMENT

The SRRE consists of the following components: waste characterization, source reduction, recycling, composting, solid waste facility capacity, education and public information, funding, special waste and integration. Each city and county is required to prepare, adopt, and submit to the California Department of Resources Recycling and Recovery (CalRecycle) an SRRE, which includes a program for management of solid waste generated within the respective local jurisdiction. The SRREs must include an implementation schedule for the proposed implementation of source reduction, recycling, and composting programs. In addition, the plan identifies the amount of landfill and transformation capacity that will be needed for solid waste which cannot be reduced, recycled, or composted (CalRecycle 2023h).

HOUSEHOLD HAZARDOUS WASTE ELEMENT

Cities and counties are required to prepare, adopt, and submit to CalRecycle, a HHWE that identifies a program for the safe collection, recycling, treatment, and disposal of hazardous wastes that are generated by households. The HHWE specifies how household hazardous wastes generated by households within the jurisdiction must be collected, treated, and disposed of (CalRecycle 2023i).

NON-DISPOSAL FACILITY ELEMENT (NDFE)

Cities and counties are required to prepare, adopt, and submit to CalRecycle, an NDFE that includes a description of new facilities and expansion of existing facilities, and all solid waste facility expansions (except disposal and transformation facilities) that recover for reuse at least 5 percent of the total volume. The NDFE are to be consistent with the implementation of a local jurisdiction's SRRE. Each jurisdiction must also describe transfer stations located within and outside of the jurisdiction, which recover less than 5 percent of the material received (CalRecycle 2023j).

COUNTYWIDE SITING ELEMENT

Counties are required to prepare a Countywide Siting Element that describes areas that may be used for developing new disposal facilities. The element also provides an estimate of the total permitted disposal capacity needed for a 15-year period if counties determine that their existing disposal capacity will be exhausted within 15 years or if additional capacity is desired (PRC Sections 41700-41721.5) (CalRecycle 2023k).

GENERAL PLANS AND OTHER PLANS

Local policies related to utilities and service systems are established in each jurisdiction's general plan. In general, jurisdictions have policies in place that state that utility and service systems must be provided at the same time (or in advance of) need. In addition to these general policies, jurisdictions may have more specific policies tailored to performance objectives including solid waste services. For further guidance regarding solid waste, many jurisdictions also produce an Integrated Waste Management Plan to manage solid waste.

3.19.2.4 ENERGY AND TELECOMMUNICATIONS

FEDERAL

UNITED STATES DEPARTMENT OF ENERGY (ENERGY POLICY ACT OF 2005)

The United States Department of Energy is the federal agency responsible for establishing policies regarding energy conservation, domestic energy production and infrastructure. The Federal Energy Regulatory Commission (FERC) is an independent federal agency, officially organized as part of the United States Department of Energy, which is responsible for regulating interstate transmission of natural gas, oil and electricity, reliability of the electric grid and approving of construction of interstate natural gas pipelines and storage facilities. The Energy Policy Act of 2005 has also granted FERC with additional responsibilities of overseeing the reliability of the nation's electricity transmission grid and supplementing state transmission siting efforts in national interest electric transmission corridors.

FERC has authority to oversee mandatory reliability standards governing the nation's electricity grid. FERC has established rules on certification of an Electric Reliability Organization, which establishes, approves and enforces mandatory electricity reliability standards. The North American Electric Reliability Corporation has been certified as the nation's Electric Reliability Organization by FERC to enforce reliability standards in all interconnected jurisdictions in North America. Although FERC regulates the bulk energy transmission and reliability throughout the United States, the areas outside of FERC's jurisdictional responsibility include state-level regulations and retail electricity and natural gas sales to consumers which falls under the jurisdiction of state regulatory agencies.

STATE

CALIFORNIA INDEPENDENT SYSTEM OPERATOR

The California ISO is an independent public benefit corporation responsible for operating California's long-distance electric transmission lines. The California ISO is led by a five-member board appointment by the Governor and is also regulated by FERC. While transmission owners and private electric utilities own their lines, the California ISO operates the transmission system independently to ensure that electricity flows comply with federal operational standards. The California ISO analyzes current and future electrical demand and plans for any needed expansion or upgrade of the electric transmission system.

CALIFORNIA PUBLIC UTILITIES COMMISSION (CPUC)

In 1911, the CPUC was established by a Constitutional Amendment as the Railroad Commission and the following year, the state Legislature passed the Public Utilities Act, expanding the Commission's regulatory authority to include natural gas, electric, telephone, and water companies as well as railroads and marine transportation companies. In 1946, the Commission was renamed the CPUC. The CPUC establishes policies and rules for electricity and natural gas rates provided by private utilities in California such as Southern California Edison, SoCalGas, and San Diego Gas & Electric. Publicly owned utilities such as Los Angeles Department of Water & Power do not fall under the CPUC's jurisdiction. The CPUC is overseen by five commissioners appointed by the Governor and confirmed by the State senate. The CPUC's responsibilities include regulating electric power procurement and generation, infrastructure oversight for electric transmission lines and natural gas pipelines and permitting of electrical transmission and substation facilities. In addition, with regard to telecommunications and broadband services, the CPUC develops and implements policies for the telecommunications industry, including ensuring fair, affordable universal access to necessary services; developing clear rules of the game and regulatory tools to allow flexibility without compromising due process; removing barriers that prevent a fully competitive market; and reducing or eliminating burdensome regulation.

CALIFORNIA ENERGY COMMISSION

The CEC is a planning agency which provides guidance on setting the state's energy policy. Responsibilities include forecasting electricity and natural gas demand, promoting and setting energy efficiency standards throughout the state, developing renewable energy resources and permitting thermal power plants 50 megawatts (MW) and larger. The CEC also has regulatory specific regulatory authority over publicly owned utilities to certify, monitor and verify eligible renewable energy resources procured. (d) Senate Bill 1389 Senate Bill (SB) 1389 (Public Resources Code Sections 25300–25323), adopted in 2002, requires the development of an integrated plan for electricity, natural gas, and transportation fuels. Under the bill, the CEC must adopt and transmit to the Governor and Legislature an Integrated Energy Policy Report every two years. In 2021, the CEC decided to write the Integrated Energy Policy Report in four volumes that were subsequently published in February 2022. Volume I highlights the actions necessary to decarbonize buildings within California. Additionally, the volume explores ways to reduce greenhouse gases from the agricultural and industrial sectors. Volume II explores actions to ensure California's energy system remains reliable and resilient. Volume III examines the role of gas in the energy system. Finally, Volume IV forecasts future demand in the electricity, gas, and transportation sectors (CEC 2021).

SENATE BILL 822 (SB 822)

SB 822 was signed into law in September 2018 as California's net neutrality law. SB 822 would ban internet providers from the following: blocking or throttling legal apps and websites; offering paid prioritization of content, or zero-rating (offering free data for specific apps). Shortly after SB 822 was signed, the U.S. Department of Justice filed suit against California over SB 822 on preemption grounds; California later agreed to hold off on enforcing its new net neutrality law until the U.S. Court of Appeals for the D.C. Circuit determines whether the FCC lawfully revoked its net neutrality regulations. In February 2021, the Department of Justice dropped the lawsuit and a preliminary injunction brought against SB 822 by the telecom industry was declined. As a result, SB 822 was allowed to go into effect.

LOCAL

Most local jurisdictions in the region have adopted ordinances and policies relating to the location and design of telecommunications facilities, most notably cellular towers. While some aspects of cellular tower development are under the jurisdiction of the FCC, and thus not subject to local land use controls, local jurisdictions can require design enhancements and other features that are generally intended to minimize the visual and operational effects of such facilities.

3.19.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that implementation of Connect SoCal 2024 could result in significant impacts related to utilities and service systems if the Plan would exceed the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals;
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

METHODOLOGY

The methodology for determining the significance of impacts utilities and service systems compares existing conditions to the expected future use of landfills with the Plan. Factors such as existing capacity and expected demand (based on population and land use patterns) are reviewed at the regional level. The criteria above were applied to compare current conditions (2022) to future 2050 Plan conditions. The analysis of utilities and service systems considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

Implementation of Connect SoCal 2024 would affect the use of utility and service systems in the SCAG region. The analysis of these impacts is programmatic at the regional level.

With regard to water supply, the Plan's potential to exceed capacity of local infrastructure and require the relocation or construction of new or expanded facilities or result in a determination that projected demand in addition to current demands is used to determine the significance of the projects effects. The analysis presented

below utilizes SCAG Scenario Planning Model (SPM) data to inform the discussion of regional water consumption (demand), which considers both indoor and outdoor water use.

With regard to wastewater, the Plan's potential to exceed capacity of local infrastructure and require the relocation or construction of new or expanded facilities or result in a determination that projected demand in addition to current demand will be used to determine the significance of the projects effects. The analysis presented below utilizes SCAG SPM data to inform the discussion of regional wastewater generation based on the assumption that 85 percent of total indoor water consumed becomes wastewater requiring treatment at one or more wastewater treatment facilities in the region.

With regard to solid waste, the Plan's potential to exceed capacity of local infrastructure as well as compliance with applicable statutes and regulations are analyzed to determine whether or not there will be a significant impact.

With regard to energy and telecommunications, the Plan's potential to trigger the need for new or expanded electricity, natural gas, or telecommunications infrastructure is analyzed to determine whether or not there will be a significant impact. Also see Section 3.6, *Energy*, for a discussion of impacts regarding energy demands, consumption, and efficiency requirements regarding energy resources in the region.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan (see CEQA Guidelines Section 15126.4(a)(1)(B)). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT UTIL-1 **Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.**

IMPACT UTIL-2 **Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.**

Significant and Unavoidable Impact – Mitigation Required

As discussed in Section 3.0, *Introduction to the Analysis*, due to the similarities of the topic areas, Impacts UTIL-1 and UTIL-2 are addressed together.

Implementation of the Plan would involve construction of new or expanded water and wastewater conveyance and treatment facilities, storm water drainage, facilities, and electric, natural gas, and telecommunications facilities. Impacts regarding each of these infrastructure types are discussed individually below. It should be noted that while transportation projects under the Plan could incrementally increase the demand for additional utilities and services systems, due to the nature of transportation projects in general, the demand for such services and associated facilities would be relatively limited. As such, it is anticipated that the vast majority of demands that could trigger the need for new or expanded water, wastewater, storm water, energy, and telecommunications facilities would be driven by land use development in the region (some of which is facilitated by transportation projects), and thus the analysis below is focused on impacts resulting from land use development consistent with the Plan's Forecasted Regional Development Pattern.

WATER SUPPLY FACILITIES

WATER TREATMENT

Population in the SCAG region is expected to increase by 2.1 million people by 2050, which may result in a significant impact to the existing water infrastructure in the region. The region is anticipated to experience an overall increase in water demand in 2050 under the Plan compared to 2019 conditions resulting from an approximate 10.9 percent population increase in the region.

Water service providers have expressed concerns similar to those of wastewater service providers in the region regarding the zero-emission vehicle (ZEV) fleet requirements of EO N-79-20 and CARB's ACF regulation (see Section 3.8, *Greenhouse Gas Emissions*) that have the potential to impact the ability of State and local wastewater agencies to adequately maintain reliable wastewater management and infrastructure during emergency situations, such as a fire, earthquake, or other natural disaster (see more detailed discussion regarding wastewater below).

In 2014, California passed Proposition 1 to guarantee approximately \$7.12 billion for water infrastructure projects, including \$725 million for projects that treat wastewater or saltwater (LAO 2014). Additionally, the DWR has announced a series of financial grants statewide to improve water infrastructure and increase capacity, including \$6 million to support desalination projects and \$4 million to the Calleguas Municipal Water District in Ventura County for new pipeline construction (DWR 2022, 2023c). As of January 2021, DWR has awarded over \$127 million in grants to local agencies for 70 desalination projects (DWR 2023d). A number of desalination projects have been proposed or are under construction within the SCAG region, including the Doheny Ocean Desalination Project which could produce 5 million gallons per day (with potential expansion to 15 mgd) (SCWD 2023). In February 2019 the City of Los Angeles announced its commitment to 100 percent recycled water at the Hyperion, L.A. Glendale, Tillman, and Terminal Island water treatment facilities by 2035 (California Water News Daily 2019).

Therefore, there is anticipated to be an increase in water supply within the SCAG region from recycling and desalination. However, this increase would likely be offset by future reductions in Colorado River water supplies due to reduced flows resulting from ongoing climate change effects. California residents used an estimated average 85 gallons of water per day in 2016 (Legislative Analyst's Office 2017). Assuming per capita water consumption remains consistent, the SCAG region could require approximately 174.7 million more gallons of water per day to meet the increase in population (see additional discussion below under Impact UTIL-3). In recent years, as a result of increased water conservation, urban water demand has remained relatively constant despite growing population. However, there may be a limit to how much water can be saved through conservation and even with increases in water efficiency, increasing population is expected to increase water demand. As a result, new water facilities will likely need to be constructed or expanded in order to meet this demand. Water facility projects vary

in sizes and locations, but larger regional-scale facilities may be constructed in sensitive environments (e.g., desalination plants adjacent to the ocean). The construction of these larger-scale facilities could result in significant impacts with respect to biological resources, air quality and noise and other issue areas similar to construction impacts of transportation projects and potential development projects as discussed throughout this 2024 PEIR. Increased use of recycled water can impact groundwater recharge if previous tertiary treated wastewater flows are diverted to other uses. New desalination facilities could impact ocean life off the coast in the vicinity of outflows. Therefore, impacts relative to construction of new or expanded water treatment facilities are considered significant and mitigation measures are required.

WATER CONVEYANCE

As development occurs incrementally throughout the region, upgrades to water conveyance facilities are anticipated to be required. Water agencies and local municipal utilities routinely construct and maintain the water distribution system within their respective service areas. Given uncertainties regarding the nature and location of future development and the location of associated water service facilities, it is not possible to determine specific impacts to affected water facilities in the region. Therefore, it is likely that the reasonably anticipated land use development encouraged by the Plan could exceed the capacity of water conveyance facilities, or the capacity of existing and planned fire hydrants. Local water delivery pipelines may need to be replaced and upgraded in the vicinity of new development that is more dense than existing development, as the majority would be expected to occur within PDAs under the Plan, and it is possible that the construction of new water lines may be necessary to serve new development in the region. However, local jurisdictions require that project applicants coordinate with the respective water service providers to ensure that existing and/or planned water conveyance facilities are capable of meeting water demand/pressure requirements.

The precise locations and points of connection would need to be determined at the time development is proposed. Should any new connections or upgrades be required, such upgrades would be subject to subsequent environmental review. Any future line size modifications or connections would be designed in accordance with applicable provisions of the respective municipal code or other relevant regulations. In coordination with the affected water service provider, project applicants are required to identify specific on- and off-site improvements needed to ensure that impacts related to water supply and conveyance demand/pressure requirements are addressed prior to issuance of a certificate of occupancy. Water supply and conveyance demand/pressure clearance from the local water purveyor is typically required at the time that a water connection permit application is submitted.

In addition, many local jurisdictions require applicants to coordinate with the local fire department and building and safety department to ensure that existing and/or planned fire hydrants are capable of meeting fire flow demand/pressure requirements. The issuance of building permits is normally dependent upon submission, review, approval, and testing of fire flow demand and pressure requirements, as established by the local jurisdiction prior to occupancy. Nonetheless, land use development under the Plan could require the construction of new or upgraded water storage or distribution facilities, which could result in adverse environmental effects throughout the region.

WASTEWATER FACILITIES

Municipal wastewater treatment requirements are related to water use. Most of the water that is not used in landscaping becomes wastewater. As noted above, California residents used an estimated average of 85 gallons of water per day in 2016 (Legislative Analyst's Office 2017). However, water demand varies substantially by

community and by land use type and therefore wastewater is anticipated to similarly vary substantially by community and water availability. In addition, periods of drought (such as between April 2019 and December 2022 [i.e., the 2020-2022 drought]) result in reduced wastewater flows. The reuse and recycling of wastewater also reduces the amount of treated wastewater to be discharged to the ocean and increases local potable and non-potable water supplies. Wastewater recycling represents an increasing share of water supplies in the region, particularly in areas that are reliant on imported water supplies, as recycling and reuse offsets the need to utilize purchased potable water for non-potable applications thereby reducing overall water costs. Wastewater recycling is based on traditional wastewater treatment processes, but typically involves advanced treatment processes such as microfiltration and reverse osmosis to achieve the necessary water quality in the recycled product water supply. This highly treated recycled water can then be used for various non-potable applications such as landscape irrigation, greywater applications (e.g., toilet flushing, cooling towers), and seawater intrusion barriers (i.e., injection into groundwater units in coastal areas to prevent intrusion of seawater into freshwater aquifers), and in some cases for potable re-use including groundwater injection. A secondary effect of water recycling is a proportionate reduction in the volume of treated wastewater discharged into receiving water bodies. While reductions in discharge flows from wastewater treatment facilities in the region does not necessarily result in notable changes in regional hydrologic conditions, the reductions can have localized effects on the flow depths, flow rates, and other hydrologic factors in affected drainage facilities. In some cases, the reduction in flows may affect the beneficial uses of some receiving water bodies (e.g., water recreation, fishing, habitat, etc.).

Wastewater generation rates are closely tied to population growth. The total population is expected to grow by approximately 11 percent across the SCAG region by 2050. While wastewater generation could proportionally increase by up to 11 percent, water conservation is likely to affect wastewater generation. Wastewater agencies are anticipated to be affected in different ways, with some agencies experiencing increases and others decreases. It is anticipated that overall wastewater generation in the region would increase between 2019 and 2050 given the increase in regional population over the same timeframe. In addition to increased demand for wastewater treatment facilities, increases in housing and population would increase wastewater flows in some existing wastewater conveyance infrastructure (sewers). Similarly, it is anticipated that increased wastewater flows would facilitate increased production, distribution, and consumption of recycled water in the region; as such, additional improvements to recycled water facilities, including advanced treatment systems, pump stations, storage tanks/reservoirs, and distribution infrastructure would be necessary to accommodate the growing demand for, and increased availability of, recycled water for non-potable applications.

Individual development projects would either be accommodated by existing infrastructure, or project proponents and/or local jurisdictions would be required to make improvements to wastewater infrastructure (replacing sewers and upgrading wastewater treatment facilities). In less developed areas of the region, new housing and employment developments could require additional wastewater infrastructure (new sewers and possibly new treatment facilities). The higher-density development reflected in the Plan could also result in the need to construct new and/or replace wastewater infrastructure including sewers with greater conveyance capacity in urban and urbanizing areas. In addition, additional wastewater entering the existing wastewater treatment facilities may overload the current capacity levels of some wastewater treatment facilities. Implementation of the Plan could result in a determination by one or more of the wastewater treatment providers in the region that there is inadequate capacity to serve the future population demand in addition to the provider's existing commitments, resulting in a significant impact requiring mitigation.

As relates to wastewater facilities, utility providers have expressed concerns regarding the ZEV fleet requirements of EO N-79-20 and CARB's ACF regulation (see Section 3.8, *Greenhouse Gas Emissions*) that have the potential to

impact the ability of State and local wastewater agencies to adequately maintain reliable wastewater management and infrastructure during emergency situations, such as a fire, earthquake, or other natural disaster. During emergencies, State and local utilities must often deploy specialized off-road vehicles which have no current ZEV equivalent, and such vehicles are unlikely to be produced by the ACF procurement deadlines. Additionally, the electrical charging requirements of ZEVs may be impractical when responding to emergencies that occur in rural, isolated locations within the SCAG region (Moline et al. 2023). Assembly Member Garcia introduced AB 1594 on February 17, 2023, which amends EO N-79-20 and requires CARB to ensure that the medium- and heavy-duty ZEVs required for procurement by State and local utility agencies “can support a public agency utility’s ability to maintain reliable water and electric services, respond to disasters in an emergency capacity, and provide mutual aid assistance statewide and nationwide, among other requirements.”

STORMWATER DRAINAGE FACILITIES

Please refer to Section 3.10, *Hydrology and Water Quality*, for a detailed discussion of hydrology and water quality impacts resulting from implementation of the Plan. The discussion below is focused on the potential environmental effects associated with the construction of new or expanded storm drainage infrastructure in the region.

Projects that increase impervious surface area, including expanding roadways, and new development projects generally increase stormwater runoff (in some cases existing hard pack soil is effectively impervious and replacing it with concrete or asphalt does not effectively reduce permeability). Increased stormwater runoff, especially in urban and suburban areas results in greater quantities of contaminants flowing in to receiving waters many of which are already impaired. Substantially increasing impervious surface area would require the construction of new storm water drainage facilities and/or expansion of existing facilities. The Plan would increase impervious surfaces in the SCAG region through a combination of transportation projects and development consistent with the Forecasted Regional Development Pattern, resulting in construction or expansion of storm water drainage facilities. As shown in **Table 3.19-10, Existing (2019) Lane Miles by County**, and **Table 3.19-11, 2050 Plan Lane Miles by County**, the Plan would increase total lane miles in the region, with the most increase in San Bernardino County (from 14,904 to 17,098 lane miles). Among all facilities freeway HOV has the most increase in lane miles from 927 in 2019 to 5,734 lane miles in 2050 with the Plan.

The increase in impervious surfaces associated with the increase in lane miles in the region, as well as runoff generated by potential land use development projects, would result in construction of new or expanded stormwater drainage facilities throughout the region, and particularly in those areas currently lacking such drainage improvements and areas subject to increased urbanization. Stormwater drainage facilities, including storm drain pipes, open drainage channels, retention facilities (surface ponds or buried tanks), and treatment facilities would be constructed throughout the region as implementation of transportation projects and urban development occur, and would generally be carried out in the course of other construction activities. Given the widespread need to construct or expand these facilities in the region to adequately capture and convey the increased stormwater flows anticipated to generated by transportation and potential land use development projects, impacts associated with stormwater facilities are considered significant.

TABLE 3.19-10 Existing (2019) Lane Miles by County

COUNTY	FREEWAY (MIXED-FLOW)	TOLL*	TRUCK	EXPRESSWAY/PARKWAY	PRINCIPAL ARTERIAL	MINOR ARTERIAL	COLLECTOR	FREEWAY (HOV)	RAMP	TOTAL ALL FACILITIES)
Imperial	379	—	—	337	364	517	2,463	—	35	4,095
Los Angeles	4,599	84	17	45	8,383	8,931	7,064	474	887	30,483
Orange	1,322	337	16	4	3,582	2,777	1,026	252	372	9,687
Riverside	1,799	35	2	125	1,032	3,088	5,062	80	251	11,476
San Bernardino	2,558	—	5	97	1,725	3,892	6,189	113	323	14,904
Ventura	538	—	—	—	811	992	1,058	8	121	3,527
Total	11,195	456	41	608	15,898	20,196	22,862	927	1,989	74,172

Source: SCAG Transportation Modeling (2023)

Note:

* Toll includes truck and High-occupancy toll (HOT)

TABLE 3.19-11 2050 Plan Lane Miles by County

COUNTY	FREEWAY (MIXED-FLOW)	TOLL*	TRUCK	EXPRESSWAY/PARKWAY	PRINCIPAL ARTERIAL	MINOR ARTERIAL	COLLECTOR	FREEWAY (HOV)	RAMP	TOTAL (ALL FACILITIES)
Imperial	417	-	—	324	413	529	2,479	-	38	4,199
Los Angeles	4,684	358	141	206	7,909	8,965	7,085	372	925	30,645
Orange	1,424	484	16	4	3,853	3,086	1,101	191	377	10,535
Riverside	1,937	221	13	122	1,359	3,695	5,837	80	361	13,625
San Bernardino	2,596	280	55	263	1,992	4,623	6,800	138	352	17,098
Ventura	570	—	—	—	846	989	1,076	68	122	3,671
Total	11,627	1,343	224	917	16,371	21,887	24,377	850	2,175	79,773

Source: SCAG Transportation Modeling (2023)

Note:

* Toll includes truck and High-occupancy toll (HOT)

ENERGY AND TELECOMMUNICATIONS FACILITIES

Also see Section 3.6, *Energy*, for a discussion of impacts regarding energy demands, consumption, generation, and efficiency requirements regarding energy resources in the region.

ELECTRICITY

Similar to other utilities, land use development typically results in the need for the construction or relocation of some power lines or service connections, such as the undergrounding of power lines. Future potential development projects would typically require a separate environmental review to determine impacts to electricity services and facilities within the respective local jurisdiction(s). However, impacts from future construction or relocation work would normally be anticipated to be less than significant as they would likely be constructed and/or installed in the existing right of way. These and similar public easements have been previously disturbed; in these instances, substantial adverse impacts would not be expected to occur. However, given the size and geographic complexity of the region, potential for large-scale improvement projects, and extent of sensitive resources in the region, it is possible that the construction of new or expanded electrical facilities could result significant impacts.

NATURAL GAS

Although many local jurisdictions in the region are transitioning away from natural gas for new developments, natural gas would continue to be provided to existing and some future land use development projects. Existing natural gas infrastructure (transmission lines and high distribution lines) is provided throughout the region and is typically located underground and along roadways to convey flows to residential and commercial users. Development under the Plan could increase the demand for natural gas and may potentially require new conveyance systems to supply areas with natural gas, despite the trend away from natural gas as a primary energy source for future development. As discussed in Section 3.6, *Energy*, of this 2024 PEIR, future total annual natural gas consumption under the Plan is expected to incrementally increase. For future land use development under the Plan, the exact locations of natural gas infrastructure would be confirmed during the design and review process. Any need for infrastructure upgrades would be accomplished through the required design review and approval of natural gas plans. Development under the Plan may necessitate the construction or relocation of new or expanded natural gas distribution facilities, including new service connections or gas lines to serve development projects. Impacts from such construction or relocation work would normally be anticipated to be less than significant based on their construction and installation in existing right of way and other public easements that have been previously disturbed and based on existing regulatory compliance measures and review and oversight by relevant local and state agencies. However, similar to electrical facilities discussed above, large-scale projects or unusual site-specific conditions could result in significant impacts.

TELECOMMUNICATIONS

As discussed in Section 3.14, *Population and Housing*, population in the region is expected to increase by approximately 11 percent by 2050. The telecommunication requirements for the region are expected to evolve as development increases and technologies change. Construction of additional telecommunications facilities or upgrades to existing facilities to meet demands would be undertaken by private telecommunication service providers in accordance with applicable federal, State, and local regulations. No restrictions on the ability to provide adequate telecommunication service are anticipated, but new or expanded facilities may be needed to meet increased demand in the region. Such expansions would result in temporary construction-related impacts pertaining to such issues as transportation, air quality, and noise. In addition, such facilities also typically are the

subject of increased public scrutiny regarding aesthetic impacts and visual compatibility with the surrounding community. These impacts, while typically not substantial, could collectively result in significant environmental effects when implemented throughout the region.

SUMMARY

Plan transportation projects and development projects consistent with the Forecasted Regional Development Pattern are anticipated to result in construction of new and/or expanded water, wastewater, stormwater, electricity, natural gas, and telecommunications facilities the construction of which could cause significant environmental impacts. These impacts would be similar to impacts of other construction activities associated with transportation projects and potential development. In addition, the increased demand for recycled wastewater for non-potable and potable uses including groundwater recharge is an additional impact that could result from the Plan. Therefore, the impact of the Plan on water, wastewater, stormwater, electricity, natural gas, and telecommunications facilities is considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-HYD-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-HYD-1.

PMM-UTIL-1 In accordance with provisions of sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to reduce substantial adverse effects on utilities and service systems, particularly for construction of wastewater facilities, as applicable and feasible. Such measures may include the following or other comparable measures identified by the Lead Agency:

- During the design and CEQA review of individual future projects, implementing agencies and projects sponsors shall determine whether sufficient wastewater capacity exists for the proposed projects. The proposed development can and should be served by its existing or planned treatment capacity. If adequate capacity does not exist, project sponsors shall coordinate with the relevant service provider to ensure that adequate public services and utilities could accommodate the increased demand, and if not, infrastructure improvements for the appropriate public service or utility shall be identified in each project's CEQA documentation. The relevant public service provider or utility shall be responsible for undertaking project-level review as necessary to provide CEQA clearance for new facilities.

PMM-UTIL-2 In accordance with provisions of sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to ensure sufficient water supplies, as applicable and feasible. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a) Reduce exterior consumptive uses of water in public areas, and should promote reductions in private homes and businesses, by shifting to drought-tolerant native landscape plantings, using weather-based irrigation systems, educating other public agencies about water use, and installing related water pricing incentives.

- b) Promote the availability of drought-resistant landscaping options and provide information on where these can be purchased. Use of reclaimed water especially in median landscaping and hillside landscaping can and should be implemented where feasible.
- c) Implement water conservation best practices such as low-flow toilets, water-efficient clothes washers, water system audits, and leak detection and repair.
- d) For projects located in an area with existing reclaimed water conveyance infrastructure and excess reclaimed water capacity, use reclaimed water for non-potable uses, especially landscape irrigation. For projects in a location planned for future reclaimed water service, projects should install dual plumbing systems in anticipation of future use. Large developments could treat wastewater onsite to tertiary standards and use it for non-potable uses onsite.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to relocation or construction of new or expanded water, wastewater, storm water, electricity, natural gas, and telecommunications facilities, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT UTIL-3 **Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years.**

Significant and Unavoidable Impact – Mitigation Required

Between climate change, historic management of groundwater supplies and increasingly stringent regulation of water rights, water supply is likely to be challenging in the future. The Plan could result in demand for water supplies that exceeds existing entitlements and resources resulting in significant impacts. Transportation projects and potential development projects could increase demand for water despite increased conservation and water demand could exceed available water supply. Potential factors that would lead water supply capabilities being exceeded include vulnerability and uncertainty of water supply, related to the Colorado River and in relation to climate variability. Climate variability includes increased temperatures and reduced rainfall and snowpack. Large-scale wildfires exacerbated by climate change also result in increased demand for water. Agricultural production in California has been substantially affected by water availability and is likely to continue to be. In addition, regulatory and/or legislative decisions such as the Colorado River agreement and changes to the Bay Delta infrastructure commitments could affect the availability of imported water.

In December 2022 SCAG adopted a Water Action Resolution that affirms a drought and water shortage emergency in the SCAG Region and calls on local and regional partners to join together to reduce water use; improve water conservation, reuse, and efficiency; enhance water systems' health and resilience; and support investments in water

infrastructure and conservation practices that support the region’s economic and population growth and fosters planning for the Region’s Housing Needs identified in Connect SoCal 2024. The Water Action Resolution identified actions for SCAG to take. These actions have been incorporated into the Plan.

Water agencies in the SCAG region produce Urban Water Management Plans (UWMPs) and other long-range planning studies to provide a system adequate to supply water demand. At current usage rates, existing water supplies and infrastructure would not be sufficient to meet demand in 2050. The volume of water and water delivery infrastructure available within the SCAG region may not be sufficient to meet the future multiple dry year or average year water demand in 2050 without substantial reduction in water demand. **Table 3.19-12, Metropolitan Water District’s 2015 IRP Update Total Level of Average-Year Demand and Supply Targets (acre-feet)**, shows the anticipated water supply targets. **Table 3.19-13, Metropolitan Water District’s 2015 IRP Update Total Local Supplies Projections (acre-feet)**, shows the anticipated local water supplies for the MWD area, which makes up a large portion of the SCAG region, for 2020, 2030, and 2040 (2050 is not available).

TABLE 3.19-12 Metropolitan Water District’s 2015 IRP Update Total Level of Average-Year Demand and Supply Targets (acre-feet)

	2016	2020	2025	2030	2035	2040
Retail Demands before Conservation	4,878,000	5,219,000	5,393,000	5,533,000	5,663,000	5,792,000
Total Conservation Target	1,034,000	1,096,000	1,197,000	1,310,000	1,403,000	1,519,000
<i>Retail Demands after Conservation</i>	<i>3,844,000</i>	<i>4,123,000</i>	<i>4,196,000</i>	<i>4,223,000</i>	<i>4,260,000</i>	<i>4,273,000</i>
Minimum CRA Diversion Target	900,000	900,000	900,000	900,000	900,000	900,000
Average Year SWP Target	1,202,000	984,000	984,000	1,213,000	1,213,000	1,213,000
Total Local Supply Target	2,199,000	2,307,000	2,356,000	2,386,000	2,408,000	2,426,000
Total Supply Reliability Target	4,301,000	4,191,000	4,240,000	4,499,000	4,521,000	4,539,000

Source: MWD 2020

Based on projected population growth under the Plan, the demand for municipal water would increase. Many agencies are implementing aggressive water conservation, recycling and planning strategies (water transfer and water banking) to sustain the supply of water during wet and dry years. The City of Los Angeles for example has maintained relatively constant water demand over the past ten years as a result of water conservation despite increasing population. Additionally, the Plan encourages compact development and smaller single-family lots in urbanized areas. Compact development tend to consume water more efficiently (lower per capita consumption). Given the uncertainty of water supplies and growth in population, water demand in the region could exceed existing and reasonably foreseeable water supplies.

Meeting future water demand is the responsibility of local and regional water agencies. Water supplies are either produced locally from groundwater and surface water sources or are imported via the Los Angeles Aqueduct, the California Aqueduct, the Colorado River Aqueduct, the All American Canal, or the Coachella Canal. Other means of providing water without increasing imported supplies include reclamation and recycling, conservation, water transfers, groundwater banking, developing brackish groundwater, and ocean desalination.

TABLE 3.19-13 Metropolitan Water District’s 2015 IRP Update Total Local Supplies Projections (acre-feet)

LOCAL SUPPLY	2020	2025	2030	2035	2040
Groundwater Production	1,290,000	1,288,000	1,288,000	1,288,000	1,289,000
Surface Production	110,000	110,000	110,000	110,000	110,000
Los Angeles Aqueduct	261,000	264,000	264,000	266,000	268,000
Seawater Desalination ^a	51,000	51,000	51,000	51,000	51,000
Groundwater Recovery ^a	143,000	157,000	163,000	165,000	167,000
Recycling ^a	436,000	466,000	486,000	499,000	509,000
Recycling – M&I	243,000	267,000	285,000	298,000	308,000
Recycling – Replenishment	126,000	129,000	131,000	131,000	131,000
Recycling – Seawater Barrier	67,000	70,000	70,000	70,000	70,000
Other Non-Metropolitan Imports	13,000	13,000	13,000	13,000	13,000
Total Local Supplies	2,304,000	2,348,000	2,374,000	2,392,000	2,406,000

Source: MWD 2020

Table Note:

a. Projections only include projects that are currently producing water, or are under construction

The Urban Water Management Plan Act of 1990 requires that local water agencies prepare plans showing projected water supplies and demands for average years and multiple dry years. These plans are updated every five years. As part of the statewide continued efforts on reducing water usage, the UWMP has been amended to further require urban water suppliers to include narrative descriptions of their water demand management measures in the UWMPs. The descriptions include discussions on progress on water demand management measures implemented over the last five year and identify additional measures and water saving practices that will help suppliers achieve water use reduction targets. Additionally, the amended Act requires UWMPs to quantify distribution system water losses as a new category of past and current water use and allows water use projections to account for estimated water savings resulting from implementation of applicable codes, building design standards, ordinances, and transportation and land use plans.

The Metropolitan Water District of Southern California prepared the Integrated Water Resources Plan (IRP) (MWD 2015) that provides a roadmap for maintaining regional water supply. The framework places an increased emphasis on regional collaboration. Earlier plans dating back to 1996 set a regional reliability goal of meeting full-service demands at the retail level under all foreseeable hydrologic conditions. This updated plan seeks to stabilize Metropolitan’s traditional imported water supplies and to continue developing additional local resources.

Over 80 percent of the projected population in the SCAG region for the year 2050 is within the MWD service area (MWD 2023c). It is anticipated that moderate density development in suburban areas, and compact development in urbanized areas, would reduce the need to extract and haul water to distances outside of the urbanized and undeveloped areas. Supplying the water necessary to meet future demand and/or minimizing that demand based on anticipated land use distribution would mitigate anticipated impacts. Each water district develops its own policy for determining its planning horizon and for acquiring and building water facilities. Water districts would provide water for the growth planned and authorized by the appropriate land use authority. However, given the challenges

to imported water supplies, meeting future demand is difficult. Therefore, impacts related to water supply are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURE

See SMM-USSWS-1 and SMM-HYD-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-UTIL-2.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to sufficiency of water supplies, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT UTIL-4 **Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.**

Significant and Unavoidable Impact – Mitigation Required

Many of the transportation projects within the Plan have the potential to generate a substantial amount of solid waste during construction through grading and excavation activities, as well as debris resulting from removal of structures. Construction of anticipated land use projects would generate similar debris. Construction debris could be recycled or used as fill at other projects (clean dirt) or transported to the nearest landfill site and disposed of appropriately.

Although there are 34 landfills that serve the SCAG region (Table 3.19-8), the lifetime of many of these landfills does not extend to the year 2050. The total population is expected to grow by nearly 2.1 million people across the SCAG region by 2050 resulting in substantial generation of solid waste (Table 3.14-8, 2019–2050 Population, Households, and Employment Projections in the SCAG Region). CalRecycle estimates that the average resident in California disposed of 6.7 pounds of trash per day as of 2019 and the average employee disposed of 11.9 pounds of trash per day, as of 2017 (2017 is the last year for which the statewide per employee disposal rate is available) (CalRecycle 2019a). From 1989 to 2012, solid waste generation per employee and resident in California was reduced by approximately half in large part due to compliance with AB 939 (CalRecycle 2019a). AB 341 requires 75 percent diversion by 2020 as compared to 2000. Because 2017 solid waste generation already reflects some reductions from AB 341 (which was implemented in 2012 and requires at least 75 percent of waste to be reduced, recycled or composted), an 18 percent reduction from the 2017 and 2019 rates was assumed for the year 2050.

This equates to approximately 5.5 pounds of trash per day per resident and 9.8 pounds of trash per day per employee in 2050. (Because people both live and work in the region, calculating waste for total residents and total employees likely overestimates waste generation; nonetheless, in order to present a conservative estimate of solid waste generation this 2024 PEIR uses this method.) These solid waste generation rates were used to calculate the solid waste generated in 2050. As discussed above, solid waste generation per capita had been decreasing steadily each year, until 2013 when they began to rise again. Despite recent increases, it is expected that solid waste generation will return to a decreasing trend in the future due to sustainable policies and practices. As shown in **Table 3.19-14, Solid Waste Generated in the SCAG Region**, assuming solid waste generation for both residents and employees according to the factors discussed above, the waste generated per day in the SCAG region under the Plan in 2050 could be up to 107,643 tons per day as compared to 109,946 tons per day in 2019.² However, as noted above, because the calculation is for residents and employees likely there is some double counting in the calculated numbers shown in the table.

TABLE 3.19-14 Solid Waste Generated in the SCAG Region

YEAR	NUMBER OF PEOPLE	SOLID WASTE GENERATION RATE (LBS/DAY) ^a	SOLID WASTE GENERATED (TONS/DAY)
Population			
2019	18,827,000	6.7	63,071
2050	20,882,000	5.5	57,427
Employment			
2019	8,976,000	10.4	46,675
2050	10,248,000	9.8	50,216
Population and Employment			
2019 Total			109,946
2050 Total			107,643

Source: SCAG modeling (2023);ESA 2023

Table Notes: By separately calculating waste per employee and waster per resident, this table likely overestimates waste generated as people both live and work within the region.

a. CalRecycle 2019a

The maximum daily disposal capacity for the 37 landfills in the SCAG region is calculated to be 187,219 tons/day as of 2021 (CalRecycle 2023b). However, only 14 of the landfills are currently anticipated to be operational in 2050 with a combined daily disposal of 108,744 tons/day (CalRecycle 2023b). Therefore, the anticipated solid waste generated could exceed the projected landfill capacity which is considered a significant impact and mitigation measures are required.

² In order to estimate the amount of waste generated by residents and employees in 2019 and 2050, it was assumed that the same percentage of waste has been reduced each year from 2012 to 2020 to meet the AB 341 requirement. Therefore, each year represents a reduction of 6.25% (50% / 8 years = 6.25%/year). Based on this assumption, 2017's estimated waste stream already met 31.25% of the required reduction (6.25%/year x 5 years = 31.25%). From 2017 to 2019, an additional 12.5% reduction of waste is assumed (6.25%/year x 2 years = 12.5%). As a result, 2017 employment per capita waste generation is reduced by approximately 12.5%, resulting in a 2019 employment waste generation of 10.4 lbs/day.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

SMM-USSW-1 SCAG shall continue to provide support for coordinating with waste management agencies, and appropriate local and regional jurisdictions, and sharing information to facilitate and encourage diversion of solid waste where applicable, appropriate, and feasible.

PROJECT LEVEL MITIGATION MEASURES

PMM-UTIL-3 In accordance with provisions of sections 15091(a)(2) and 15126.4(a)(1)(B) of the CEQA Guidelines, a lead agency for a project can and should consider mitigation measures to reduce the generation of solid waste, as applicable and feasible. Such measures may include the following or other comparable measures identified by the lead agency:

Integrate green building measures consistent with CALGreen (California Building Code Title 24) into project design including, but not limited to the following:

- a) Reuse and minimize construction and demolition (C&D) debris and diversion of C&D waste from landfills to recycling facilities.
- b) Include a waste management plan that promotes maximum C&D diversion.
- c) Source reduction through (1) use of materials that are more durable and easier to repair and maintain, (2) design to generate less scrap material through dimensional planning, (3) increased recycled content, (4) use of reclaimed materials, and (5) use of structural materials in a dual role as finish material (e.g., stained concrete flooring, unfinished ceilings, etc.).
- d) Reuse existing structure and shell in renovation projects.
- e) Develop indoor recycling program and space.
- f) Discourage the siting of new landfills unless all other waste reduction and prevention actions have been fully explored. If landfill siting or expansion is necessary, site landfills with an adequate landfill-owned, undeveloped land buffer to minimize the potential adverse impacts of the landfill in neighboring communities.
- g) Discourage exporting of locally generated waste outside of the SCAG region during the construction and implementation of a project. Encourage disposal within the county where the waste originates as much as possible. Promote green technologies for long-distance transport of waste (e.g., clean engines and clean locomotives or electric rail for waste-by-rail disposal systems) and where appropriate and feasible.
- h) Encourage waste reduction goals and practices and look for opportunities for voluntary actions to exceed the 80 percent waste diversion target.
- i) Encourage the development of local markets for waste prevention, reduction, and recycling practices by supporting recycled content and green procurement policies, as well as other waste prevention, reduction, and recycling practices.
- j) Develop ordinances that promote waste prevention and recycling activities such as: requiring waste prevention and recycling efforts at all large events and venues; implementing recycled content procurement programs; and developing opportunities to divert food waste away from landfills and toward food banks and composting facilities.

- k) Develop and site composting, recycling, and conversion technology facilities that have minimum environmental and health impacts.
- l) Integrate reuse and recycling into residential industrial, institutional, and commercial projects.
- m) Provide education and publicity about reducing waste and available recycling services.
- n) Implement or expand city or county-wide recycling and composting programs for residents and businesses. This could include extending the types of recycling services offered (e.g., to include food and green waste recycling) and providing public education and publicity about recycling services.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related solid waste generation and disposal, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT UTIL-5 **Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.**

Significant and Unavoidable Impact – Mitigation Required

Potential land use projects implemented as a result of the Plan would be required to comply with federal, state, and local statutes and regulations related to solid waste, including county and city general plans. Local jurisdictions also have goals and policies for recycling and diversion of solid waste to ensure compliance with the California Integrated Waste Management Act (AB 939), the California Solid Waste Reuse and Recycling Act, and the Solid Waste Diversion Rule (AB 341). Local governments submit an annual report to CalRecycle on the implementation of waste diversion plans to comply with their respective per capita disposal targets. CalRecycle reviews each local government's progress in implementing its unique diversion program and progress in sustaining or achieving compliance. CalRecycle may refer some local governments for a compliance evaluation review, although the number of local governments referred is generally less than one percent. If a more thorough analysis reveals a jurisdiction is not meeting the "good faith" standard for implementing its diversion programs or for reaching per capita disposal targets, CalRecycle will issue a compliance order. If the jurisdiction fails to fulfill its implementation plan to correct the program deficiencies, then the jurisdiction will be subject to penalties.

There are also multiple additional laws aimed at reducing solid waste in California including, AB 1826 which sought to greatly reduce the amount of organic material deposited into landfills by further mandating waste recycling services for organic material. At the beginning of 2016, local jurisdictions were required under AB 1826 to implement an organic waste recycling program and measure and monitor their efforts. Also, Section 5.408 "Construction Waste Reduction, Disposal and Recycling" of the 2019 California Green Building Standards code

(CALGreen) requires all new construction and demolition projects to develop a Construction Waste Management Plan which recycles or salvages a minimum of 65 percent of non-hazardous construction and demolition waste.

Transportation and anticipated development projects would be required to comply with AB 341, as well as the additional laws cited above which would further reduce anticipated solid waste generation. However, due to the volume of solid waste debris expected to be generated with implementation of the Plan and potential for projects to conflict with solid waste management and reduction statutes and regulations, impacts are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-USSW-1.

PROJECT LEVEL MITIGATION MEASURES

See PMM-UTIL-3

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*), compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project-level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to conflicts with federal, state, and local management and reduction statutes and regulations related to solid waste, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in and of itself, would result in significant adverse environmental impacts with respect to solid waste, wastewater, and water supply, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

3.19.4 SOURCES

WATER SUPPLY

Assembly Bill 1594, Chapter 585. Medium- and heavy-duty zero-emission vehicles: public agency utilities.

California Air Resources Board (CARB). 2023. Advanced Clean Fleets Regulation Summary. April 13.

https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary?utm_medium=email&utm_source=govdelivery. Accessed May 9, 2023.

California Code of Regulations. Title 23, Division 2, Chapter 2.7: Model Water Efficient Landscape Ordinance.

California Department of Public Health (DPH). 2014. Regulations Related to Recycled Water. June 18.

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/Rwregulations_20140618.pdf.

California Department of Water Resources (DWR). 1992. 1992 Assembly Bill 3030 (AB3030).

<https://water.ca.gov/Programs/Groundwater-Management/Non-SGMA-Groundwater-Management#:~:text=The%20Groundwater%20Management%20Act%20was%20first%20introduced%20in,t o%20be%20developed%20and%20adopted%20by%20local%20agencies>. Accessed March 23, 2023.

DWR. 2001. Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001.

<https://cawaterlibrary.net/wp-content/uploads/2017/06/guidebook.pdf>.

DWR. 2009. SB X7-7. <https://water.ca.gov/Programs/Water-Use-And-Efficiency/SB-X7-7>. Accessed March 23, 2023.

DWR. 2013. *California Water Plan, Volume 1 – The Strategic Plan*. <https://water.ca.gov/Programs/California-Water-Plan/Water-Plan-Updates>. Accessed March 23, 2023.

DWR. 2022. DWR Announces \$6 Million to Support Desalination Projects. September 8.

<https://water.ca.gov/News/News-Releases/2022/Sep-22/DWR-Announces-6-Million-to-Support-Desalination-Projects>. Accessed March 23, 2023.

DWR. 2023a. DWR Announces Modest Increase in State Water Project Allocation. February 22.

<https://water.ca.gov/News/News-Releases/2023/Feb-23/DWR-Announces-Modest-Increase-in-State-Water-Project-Allocation>. Accessed March 23, 2023.

DWR. 2023b. Urban Water Management Plans. <https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Urban-Water-Management-Plans>. Accessed May 9, 2023.

DWR. 2023c. DWR Awards \$46 Million to Help Communities Statewide Improve Water Supply Reliability,

Groundwater Recharge and Water Use Efficiency. [https://water.ca.gov/News/News-Releases/2023/Feb-23/DWR-Awards-\\$46-Million-to-Help-Communities-Statewide-Improve-Water-Supply-Reliability](https://water.ca.gov/News/News-Releases/2023/Feb-23/DWR-Awards-$46-Million-to-Help-Communities-Statewide-Improve-Water-Supply-Reliability). Accessed March 23, 2023.

DWR. 2023d. Water Desalination Grant Program. <https://water.ca.gov/Work-With-Us/Grants-And-Loans/Desalination-Grant-Program>. Accessed March 24, 2023.

DWR. 2023e. California Water Plan Update 2023. <https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/California-Water-Plan/Docs/Update2023/PRD/California-Water-Plan-Update-2023-Public-Review-Draft.pdf>.

- California Environmental Protection Agency. (Cal EPA). 2023. California Integrated Water Quality System Project (CIWQS)- Regulated Facility Report (Detail). https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?OWASP_CSRFTOKEN=0H4Q-515Q-VH6F-S8XG-GKO5-95JT-BYH5-KZR4. Accessed March 23, 2023.
- Cal Matters. 2022. How bad is water use in California? March is the worst so far, up 19%. May. <https://calmatters.org/environment/2022/05/california-water-use-up-19/>. Accessed September 21, 2023.
- California State Water Resources Control Board (SWRCB). 2015. Executive Order B-29-15 State of Emergency Due to Sever Drought Conditions. https://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/emergency_regulations/econ_analysis.pdf.
- SWRCB. 2021. Safe Drinking Water Plan for California. <https://calmatters.org/wp-content/uploads/2021/12/Safe-Drinking-Water-Plan-for-California-September-2021.pdf>.
- SWRCB. 2023. Porter-Cologne Water Quality Control Act. January. https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf.
- California Water Code. Division 6, Part 2.6: Urban Water Management Planning.
- California Water Code. Division 6, Part 2.10: Water Supply Planning to Support Existing and Planned Future Uses [10910-10915], Section 10910.
- California Water Code. Division 6, Part 2.10: Water Supply Planning to Support Existing and Planned Future Uses [10910-10915], Section 10912.
- California Water News Daily. 2019. Los Angeles Mayor Garcetti Announces Goal to Recycle 100 Percent of City's Wastewater by 2035. <http://californiawaternewsdaily.com/conservation/los-angeles-mayor-garcetti-announces-goal-to-recycle-100-percent-of-citys-wastewater-by-2035/>. Accessed March 24, 2023.
- U.S. Department of the Interior (USDOI). 2023. Press release. <https://www.doi.gov/pressreleases/biden-harris-administration-announces-historic-consensus-system-conservation-proposal>. Accessed September 1, 2023
- Imperial Irrigation District (IID). 2021. Water Conservation. <https://www.iid.com/water/water-conservation>. Accessed March 23, 2023.
- Legislative Analyst's Office (LAO). 2014. Water Quality, Supply, and Infrastructure Improvement Act of 2014. AB 1471 (Chapter 188, Statutes of 2014), Rendon. Bond Measure. https://leginfo.legislature.ca.gov/faces/billCompareClient.xhtml?bill_id=201320140SB866&showamends=false. Accessed March 23, 2023.
- LAO. 2017. Residential Water Use Trends and Implications for Conservation Policy. March 8. <https://lao.ca.gov/Publications/Report/3611>. Accessed May 9, 2023.
- Los Angeles Times (LA Times). 2023. At the heart of Colorado River crisis, the mighty 'Law of the River' holds sway. February 3. <https://www.latimes.com/california/story/2023-02-03/law-of-the-river-now-battleground-in-colorado-river-crisis>. Accessed March 23, 2023.
- Metropolitan Water District of Southern California (MWD). 2015. Integrated Water Resources Plan 2015 Update. <https://www.mwdh2o.com/how-we-plan/integrated-resource-plan/>. Accessed March 22, 2023.
- MWD. 2016. 2015 Urban Water Management Plan. https://www.mwdoc.com/wp-content/uploads/2017/05/UWMP_May-2016-v2.pdf.
- MWD. 2020. Integrated Water Resources Plan. <https://www.mwdh2o.com/how-we-plan/integrated-resource-plan/>. Accessed September 13, 2023.
- MWD. 2021a. 2020 Urban Water Management Plan. June. https://www.mwdoc.com/wp-content/uploads/2017/05/UWMP_May-2016-v2.pdf.

- MWD. 2021b. *Water Shortage Contingency Plan*. June. www.mwdh2o.com/media/21648/water-shortage-contingency-plan-june-2021.pdf.
- MWD. 2023a. Members Agencies. <https://www.mwdh2o.com/member-agencies/>. Accessed March 22, 2023.
- MWD. 2023b. Achievements in Conservation, Recycling, & Groundwater Recharge: Covering Fiscal Year 2021/2022. February. <https://www.mwdh2o.com/media/3vah4zvt/2023-annual-achievement-report-final-metropolitan-water-district.pdf>.
- MWD. 2023c. Metropolitan's Member Agency Maps. https://www.mwdh2o.com/media/17142/642_maps_memberagencies.pdf?keywords=service%20area. Accessed March 24, 2023.
- Moline, B., M. Webster, and R.S. Howard. 2023. California's Clean Fleets Rule Could Make Restoring Power and Water During an Emergency More Difficult. https://www.cmua.org/article_content.asp?adminkey=6f9a209a8d958343caf705e43c417baa&article=75&mc_cid=c3ff3c0010&mc_eid=UNIQID. Accessed May 9, 2023.
- National Integrated Drought Information System. 2023. California-Nevada Drought Status Update. <https://www.drought.gov/drought-status-updates/california-nevada-drought-status-update-2023-04-20#>. Accessed September 14, 2023.
- Public Policy Institute of California (PPIC). 2023. *Water Use in California*. <https://www.ppic.org/wp-content/uploads/jtf-water-use.pdf>.
- South Coast Water District (SCWD). 2023. Doheny Ocean Desalination Project. https://www.scwd.org/about/district_projects/doheny_ocean_desalination_project/index.php. Accessed March 24, 2023.
- Southern California Association of Governments (SCAG). 2008. Regional Comprehensive Plan: Water. https://scag.ca.gov/sites/main/files/file-attachments/f2008rcp_water.pdf?1605985521. Accessed May 9, 2023.
- U.S. Bureau of Reclamation (USBR). 1922. *Colorado River Compact, 1922*. <https://www.usbr.gov/lc/region/pao/pdfiles/crcompct.pdf>.
- U.S. Environmental Protection Agency (USEPA). 2023a. Clean Water Act, Section 402: National Pollutant Discharge Elimination System. <https://www.epa.gov/cwa-404/clean-water-act-section-402-national-pollutant-discharge-elimination-system>. Accessed May 9, 2023.
- USEPA. 2023b. Safe Drinking Water Act (SDWA). <https://www.epa.gov/sdwa>. Accessed May 9, 2023.

WASTEWATER

- Assembly Bill 1594, Chapter 585. Medium- and heavy-duty zero-emission vehicles: public agency utilities.
- California Air Resources Board (CARB). 2023. Advanced Clean Fleets Regulation Summary. April 13. https://ww2.arb.ca.gov/resources/fact-sheets/advanced-clean-fleets-regulation-summary?utm_medium=email&utm_source=govdelivery. Accessed May 9, 2023.
- California Department of Transportation (Caltrans). 2016. *Statewide Stormwater Management Plan*. https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/caltrans/swmp/swmp_approved.pdf.
- Caltrans. 2023. Stormwater & Water Pollution Control. <https://dot.ca.gov/programs/traffic-operations/ep/stormwater>. Accessed May 9, 2023.
- California Department of Water Resources (DWR). 2023a. Urban Water Management Plans. <https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Urban-Water-Management-Plans>. Accessed May 9, 2023.

- DWR. 2023b. SB X7-7. <https://water.ca.gov/Programs/Water-Use-And-Efficiency/SB-X7-7>. Accessed May 9, 2023.
- California Environmental Protection Agency (Cal EPA). 2023. Regulated Facility Report. <https://ciwqs.waterboards.ca.gov/ciwqs/readOnly/CiwqsReportServlet?inCommand=reset&reportName=RegulatedFacility>. Accessed March 22, 2023.
- California State Water Resources Control Board (SWRCB). 2009. Construction General Permit Fact Sheet. https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_complete.pdf.
- SWRCB. 2012. *Fact Sheet: Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy)*. https://www.waterboards.ca.gov/water_issues/programs/owts/docs/owts_policy.pdf.
- SWRCB. 2013. Order No. 2012-0011-DWQ NPDES No. CAS000003 National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements (WDRS) for State of California Department of Transportation. https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2012/wqo2012_0011_dwq.pdf.
- SWRCB. 2015. *California Ocean Plan*. https://www.waterboards.ca.gov/water_issues/programs/ocean/docs/cop2015.pdf.
- SWRCB. 2019a. Porter-Cologne Water Quality Control Act. https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf.
- SWRCB. 2019b. Strategy to Optimize Resource Management of Stormwater. https://www.waterboards.ca.gov/water_issues/programs/stormwater/storms/. Accessed May 9, 2023.
- SWRCB. 2023a. Water Board Structure. https://www.waterboards.ca.gov/la_hontan/about_us/water_boards_structure.html. Accessed March 22, 2023.
- SWRCB. 2023b. Strategy to Optimize Resource Management of Storm Water (Storm Water Strategy, STORMS). https://www.waterboards.ca.gov/water_issues/programs/stormwater/storms/. Accessed March 22, 2023.
- SWRCB. 2023c. Industrial Stormwater Program. See https://www.waterboards.ca.gov/water_issues/programs/stormwater/industrial.html. Accessed May 9, 2023.
- SWRCB. 2023d. Municipal Stormwater Program. https://www.waterboards.ca.gov/water_issues/programs/stormwater/municipal.html. Accessed May 9, 2023.
- California Water Code. Division 6, Part 2.6: Urban Water Management Plan.
- Center for Watershed Protection (CWP). 1988. *Rapid Watershed Planning Handbook – A Resource Guide for Urban Subwatershed Management*. Ellicott City, MD. <https://www.govinfo.gov/content/pkg/FR-1996-08-09/pdf/96-20228.pdf>.
- Legislative Analyst’s Office. 2017. Residential Water Use Trends and Implications for Conservation Policy. March 8. <https://lao.ca.gov/Publications/Report/3611>. Accessed May 9, 2023.
- Los Angeles County Sanitation Districts (LACSD). 2023. Wastewater Treatment Process. <https://www.lacsd.org/services/wastewater-sewage/facilities/wastewater-treatment-process>. Accessed March 22, 2023.
- Moline, Barry, Michael Webster, and Randy S. Howard. 2023. California’s Clean Fleets Rule Could Make Restoring Power and Water During an Emergency More Difficult. https://www.cmua.org/article_content.asp?adminkey=6f9a209a8d958343caf705e43c417baa&article=75&mc_cid=c3ff3c0010&mc_eid=UNIQID. Accessed May 9, 2023.

- U.S. Environmental Protection Agency (USEPA). 2002. Federal Water Pollution Control Act. <https://www.epa.gov/sites/production/files/2017-08/documents/federal-water-pollution-control-act-508full.pdf>.
- USEPA. 2023a. NPDES Stormwater Program. <https://www.epa.gov/npdes/npdes-stormwater-program>. Accessed May 9, 2023.
- U.S. Bureau of Reclamation (USBR). 2023. *Los Angeles Basin Stormwater Conservation Study: Local Stormwater Capture*. <https://www.usbr.gov/lc/socal/basin studies/AppendixB.pdf>.
- U.S. Geological Survey (USGS). 2023. Impervious Surfaces and Flooding. https://www.usgs.gov/special-topic/water-science-school/science/impervious-surfaces-and-flooding?qt-science_center_objects=0#qt-science_center_objects. Accessed May 9, 2023.
- Water Education Foundation (WEF). 2023a. Regional Water Quality Control Boards in California. <https://www.watereducation.org/aquapedia/regional-water-quality-control-boards-california>. Accessed May 9, 2023.
- WEF. 2023b. Water Recycling and Title 22. <https://www.watereducation.org/aquapedia/water-recycling-and-title-22>. Accessed May 9, 2023.

SOLID WASTE

- Assembly Bill No. 341. October 5, 2011.
- Assembly Bill No. 1045, Chapter 596. October 8, 2015.
- Assembly Bill No. 2153, Chapter 666. September 26, 2016.
- Assembly Bill No. 2449, Chapter 845. September 30, 2006.
- Assembly Bill No. 2675, Chapter 617. September 26, 2014.
- Assembly Bill No. 2901, Chapter 891. September 29, 2004.
- California Building Standards Commission (CBSC). 2022. 2022 California Green Building Standards Code. <https://codes.iccsafe.org/content/CAGBC2022P1>. Accessed March 22, 2023.
- California Code of Regulations. Title 14, Division 7: Department of Resources Recycling and Recovery.
- California Code of Regulations. Title 27, Division 2: Solid Waste.
- California Department of Resources Recycling and Recovery (CalRecycle). 2019a. California Statewide per Resident, per Employee, and Total Disposed Since 1989. <https://calrecycle.ca.gov/lgcentral/goalmeasure/disposalrate/graphs/disposal/>. Accessed March 22, 2023.
- CalRecycle. 2019b. Landfill Tonnage Reports (2019). <https://www2.calrecycle.ca.gov/LandfillTipFees/>. Accessed September 21, 2023.
- CalRecycle. 2021. Landfill Tonnage Reports (2022). <https://www2.calrecycle.ca.gov/LandfillTipFees/>. Accessed March 22, 2023.
- CalRecycle. 2023a. Permitting Landfills and Disposal Sites. <https://www.calrecycle.ca.gov/swfacilities/permitting/facilitytype/landfill#Definitions>. Accessed March 22, 2023.
- CalRecycle. 2023b. SWIS Facility/Site Search. <https://www2.calrecycle.ca.gov/swfacilities/Directory/13-AA-0004/Index>. Accessed March 22, 2023.

- CalRecycle. 2023c. Goal Measurement. November. <https://www.calrecycle.ca.gov/LGCentral/GoalMeasure/>. Accessed March 22, 2023.
- CalRecycle. 2023d. History of California Solid Waste Law, 1985–1989. <https://www.calrecycle.ca.gov/laws/legislation/calhist/1985to1989>. Accessed March 22, 2023.
- CalRecycle. 2023e. Mandatory Commercial Recycling. <https://www.calrecycle.ca.gov/recycle/commercial>. Accessed March 22, 2023.
- CalRecycle. 2023f. Short-Lived Climate Pollutants (SLCP): Organic Waste Reductions. <https://calrecycle.ca.gov/Climate/SLCP/>. Accessed March 22, 2023.
- CalRecycle. 2023g. History of California Solid Waste Law, 2015–2019. <https://www.calrecycle.ca.gov/Laws/Legislation/CalHist/2015to2019/>. Accessed March 22, 2023.
- CalRecycle. 2023i. Household Hazardous Waste Element (HHWE) Adequacy. <https://www.calrecycle.ca.gov/LGCentral/Library/Policy/CIWMPEnforce/Part1/HWWEAdq/>. Accessed March 22, 2023.
- CalRecycle. 2023j. Nondisposal Facility Element Adequacy. <https://www.calrecycle.ca.gov/LGCentral/Library/Policy/CIWMPEnforce/Part1/NDFEAdq/>. Accessed March 22, 2023.
- CalRecycle. 2023k. Countywide Siting Element Adequacy. <https://www.calrecycle.ca.gov/LGCentral/Library/Policy/CIWMPEnforce/Part1/CSEAdq/>. Accessed March 22, 2023.
- CalRecycle. 2023h. Source Reduction and Recycling Element Adequacy. <https://www.calrecycle.ca.gov/LGCentral/Library/Policy/CIWMPEnforce/Part1/SRREAdq/>. Accessed March 22, 2023.
- California Legislature. 2017. *An Overview of California’s Beverage Container Recycling (Bottle Bill) Program*. February 15. https://senv.senate.ca.gov/sites/senv.senate.ca.gov/files/background_hearing_on_ltrhead.pdf.
- California Public Resources Code. Division 30, Part 2, Chapter 5, Article 1: Plan Preparation [41750–41751], Section 41751.
- California Public Resources Code. Division 30, Part 3, Chapter 8.5, Article 1: General Provisions [42460–42461.5].
- California Public Resources Code. Division 30, Part 3, Chapter 18, Article 1: Short Title and Findings and Declarations [42900–42901].
- California Water Boards (CWB). 2018. *Fact Sheet: Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy)*. April 17. https://www.waterboards.ca.gov/water_issues/programs/owts/docs/owts_fact_sheet_20180823.pdf.
- Senate Bill No. 270, Chapter 850. September 30, 2014.
- Senate Bill No. 1383, Chapter 395. September 19, 2016.
- U.S. Environmental Protection Agency (USEPA). 2023a. NPDES Stormwater Program. <https://www.epa.gov/npdes/npdes-stormwater-program>. Accessed March 22, 2023.
- USEPA. 2023b. Summary of the Resource Conservation and Recovery Act. <https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act>. Accessed March 22, 2023.
- USEPA. 2023c. Non-hazardous Waste. <https://www.epa.gov/rcra/resource-conservation-and-recovery-act-rcra-regulations#nonhaz>. Accessed March 22, 2023.

ENERGY AND TELECOMMUNICATIONS

California Energy Commission (CEC). 2021. 2021 Integrated Energy Policy Report.

<https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report>. Accessed October 13, 2023

California Gas and Electric Utilities. 2022. 2022 California Gas Report. [https://www.socalgas.com/sites/default/files/Joint Utility Biennial Comprehensive California Gas Report 2022.pdf](https://www.socalgas.com/sites/default/files/Joint%20Utility%20Biennial%20Comprehensive%20California%20Gas%20Report%202022.pdf).

California Public Utilities Commission (CPUC). 2018. Utility Infrastructure Data as of December 2018.

https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpuc_public_website/content/utilities_and_industries/energy/energy_programs/infrastructure/utility-infrastructure-data-formatted.pdf.

CPUC. 2021. CPUC Undergrounding Programs Description. <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/electric-reliability/undergrounding-program-description>. Accessed October 12, 2023.

Southern California Gas Company (SoCalGas). 2013. Pipeline Basics.

<https://www.socalgas.com/documents/news-room/fact-sheets/PipelineBasics.pdf>.

3.20 WILDFIRE

This section of the 2024 PEIR describes existing wildfire conditions within the SCAG region, sets forth the regulatory framework that affect wildfire, and analyzes the potential impacts of Connect SoCal 2024. In addition, this 2024 PEIR provides regional-scale mitigation measures as well as project-level mitigation measures that can and should be considered and implemented by lead agencies for subsequent, site-specific environmental reviews to reduce identified impacts as appropriate and feasible. Other fire protection considerations are addressed in Section 3.15, *Public Services*, under the discussion of fire protection. Emergency access and emergency response and evacuation plans are addressed in Section 3.9, *Hazards and Hazardous Materials*.

3.20.1 ENVIRONMENTAL SETTING

DEFINITIONS

Definitions of terms used in the regulatory framework, characterization of baseline conditions, and impact analysis for wildfire follow:

- **CAL FIRE:** California Department of Forestry and Fire Protection (abbreviated Cal Fire and styled CAL FIRE). CAL FIRE is the State of California’s fire protection agency responsible for protection and stewardship of over 31 million acres of the state’s privately-owned wildlands. CAL FIRE is an “all-risk” department, meaning its teams may respond to a car crash, medical incident, hazardous material spill, or natural disaster, not just fires. CAL FIRE is also responsible for managing 71,000 acres of Demonstration State Forests, overseeing enforcement of state forest management regulations, and operating training and certification course trainings (CAL FIRE 2023a).
- **Clearance:** Space cleared of vegetation as required by law, regulation, easement, etc. for the purpose of preventing fires.
- **Containment/Control:** A fire is contained when it is completely surrounded by a boundary but is still burning and has the potential to jump a boundary line. The boundary may be a “fire line” which is a strip of area where the vegetation has been removed to deny the fire fuel, or a river, a freeway or some other barrier which is expected to stop the fire. Hose lines from fire engines may also contribute to a fire being surrounded and contained. A fire is controlled when there is no further threat of it jumping a containment line. While crews continue to do mop-up work within the fire lines, the fire fight is over.
- **Contract Counties:** Contract counties are counties where the local county fire department is contracted by CAL FIRE to protect a State Responsibility Area (SRA). Section 4133 of the Public Resources Code and Section 55607 of the Government Code permit the CAL FIRE Director to contract with counties for protection of SRAs. In California, six counties provide fire-prevention services in SRAs under contract with the state. These counties are Marin, Kern, Santa Barbara, Ventura, Los Angeles, and Orange.
- **Damage Assessment:** Amount of economic loss, including cost of fire suppression.
- **Defensible Space:** An area either natural or manmade where material capable of causing a fire to spread unchecked has been treated, cleared, reduced, or changed in order to act as barrier between the advancing wildfire and the loss to life, property, or resources. This concept is vital for firefighter safety and provides the single significant element of protection of individual property owners. California law requires homeowners to maintain 100 feet of defensible space around homes and structures.

- *Easement*: A right to cross or otherwise use someone else's property for a specified purpose.
- *Fire Hazard*: Dangerous accumulation of flammable fuels in wildland areas, usually referring to vegetation or the flammable materials that may be ignited by various fire risks or cause fires to increase in intensity or rate of spread.
- *Fire Hazard Zoning*: A planning and regulatory activity (typically conducted by a local agency such as a city or county) which provides criteria for what kinds, how many and under what conditions development or other activities should be regulated in areas of various hazard classification.
- *Fire Season*: In California fire season generally lasts for six to eight months, from summer to early fall. In recent years, fire season has extended into December.
- *Greenbelts*: A facility or land use designed for a use other than fire protection, which will slow or resist the spread of a wildfire. Includes parking lots, irrigated or landscaped areas, golf courses, parks, playgrounds and maintained vineyards, orchards or annual crops that do not cure in the field.
- *Interface/Wildland Interface*: The meeting point of wildland and structures. At this interface, structures and vegetation are sufficiently close that a wildland fire could spread to structures or a structure fire ignites vegetation.
- *Intermix/Wildland Intermix*: Interspersion of developed land with wildland, where there are no easily discernible boundaries between the two systems. In this setting, there may be homes or other structures intermixed with wildland fuels, as opposed to a distinct area of wildland fuel adjacent to a developed area.
- *Local Responsibility Area (LRA)*: Areas where wildland fire protection is the responsibility of the local government. LRA fire protection is typically provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract to local governments.
- *Prescribed Burning*: Controlled application of fire to wildland fuels, in either their natural or modified state, under conditions of weather, fuel moisture, soil moisture, etc., as to allow the fire to be confined to a predetermined area and at the same time to produce results to meet planned objectives of land management.
- *Santa Ana Winds*: Santa Ana winds blow from the northeast toward the beaches as areas of strong high pressure build across the interior west. The wind speed can be magnified as air squeezes over mountain passes and rushes downhill, heating and drying as it descends in elevation. Severe Santa Ana Wind events pose a heightened wildfire risk.
- *State Responsibility Area (SRA)*: SRAs are areas in which the primary financial responsibility for preventing and suppressing fires is that of the state and is defined based on land ownership, population density and land use (CAL FIRE 2017). These include lands covered wholly or in part by timber, brush, undergrowth or grass, whether of commercial value or not; lands which protect the soil from erosion, retard run-off of water or accelerated percolation; lands used principally for range or forage purposes; lands not owned by the Federal government; and lands not incorporated. By Board regulations, unless specific circumstances dictate otherwise, lands are removed from SRA when housing densities average more than 3 units per acre over an area of 250 acres. CAL FIRE has SRA responsibility for the protection of more than 31 million acres of California's privately-owned wildlands (CAL FIRE 2017).
- *Wildland*: Refers to unoccupied lands.
- *Wildland Urban Interface*: Refers to the geographical point where flammable vegetation meets man-made structures.

EXISTING CONDITIONS

A wildfire is defined as a non-structural fire in undeveloped area with the potential to spread to an urban area. While wildfires are common across California, a variety of factors can affect the likelihood of a fire occurring and the severity of the burn. Unsurprisingly, locations with hot, dry, and windy conditions face a greater fire hazard than wetter and cooler locations, and communities near wildland areas are more endangered than those in cities and towns. Vegetation, topography, roadways, and management methods also contribute to an area's potential for fire hazards. Steep hillsides and varied topography may also increase the risk of wildland fires, and could affect natural resources, as well as life and property. Most fires in California occur during late summer and early fall, but recently the fire season is starting earlier and lasting longer in the year, affecting areas longer, and resulting in more extreme events due to climate change.

CAL FIRE publishes Fire Hazard Severity Zone Maps for the entire State of California, which include fire hazard measurements, as well as the areas that are under SRA lands or LRA lands, for each county in the State (CAL FIRE 2022a). These maps place areas of the state into different fire hazard severity zones (FHSZs) based on a hazard scoring system using subjective criteria for fuels, fire history, terrain influences, housing density, and occurrence of severe fire weather where urban fire could result in catastrophic losses. As part of this mapping system, land where CAL FIRE is responsible for wildland fire protection and generally located in unincorporated areas is classified as a SRA. In addition to establishing local or state responsibility for wildfire protection in a specific area, CAL FIRE designates areas as very high fire hazard severity zones (VHFHSZs) or non-VHFHSZs (CAL FIRE 2023g).

In 2020, Southern California experienced the hottest year on record, with temperatures in Woodland Hills reaching 121 degrees, the hottest temperature ever recorded at an official National Weather Service station in Los Angeles County (NASA Earth Observatory 2020). The heat, coupled with years of drought and an increase of forest pests and disease linked to climate change, created perfect fire conditions that allowed for some of the most destructive and deadliest fires in the state's history. Wind direction and intensity, particularly for fires close to populated areas pose not only safety issues, but also air quality related health issues resulting from particulate matter emitted from wildfire smoke (refer to Section 3.3, *Air Quality*, of this 2024 PEIR for further information on impacts from particulate matter). Consequently, 2020 was characterized as the deadliest and most destructive wildfire year in Southern California recorded history, with 1,381 fires that burned 165,641 acres (CAL FIRE 2020a).

FIRE HAZARD SEVERITY ZONES

Wildland fire protection in California is the responsibility of either the local, state, or federal government. Public Resources Code Section 4201-5 (Chapter 806, Statutes of 1982) requires CAL FIRE to evaluate fire hazard severity and map FHSZs for all SRAs. FHSZs are based on factors such as fuel, slope, and weather and are designated as moderate, high, and very high. Zone classification is based on a combination of how a fire will behave and the probability of flames and embers threatening buildings. By identifying areas with the potential for more severe wildfire hazards, FHSZ maps allow for proper planning, prevention, and mitigation that reduce wildfire damages. On November 21, 2022, CAL FIRE updated all FHSZ maps for SRA counties and pending receipt of all public comments on the revised maps, will make recommendations to LRAs (Office of the State Fire Marshall 2023).

After the Oakland Hills Fire of 1991, the "Bates Bill" (Senate Bill 337) was passed in 1992, calling on CAL FIRE to make recommendations to local jurisdictions where VHFHSZs exist. The bill provides direction for local jurisdictions to mitigate fire spread and reduce the intensity of uncontrolled blazes.

FHSZ levels range from Moderate to Very High. FHSZs are designated in three types of areas based on what level of government is financially responsible for preventing and suppressing wildfires:

- **Federal Responsibility Areas (FRAs):** The federal government is financially responsible for wildfire suppression. Within the District, the Angeles National Forest and federal land in the Santa Monica Mountains National Recreation Area are FRAs.
- **SRAs:** The state is financially responsible for wildfire suppression. Within the District, SRAs are in outlying areas such as the Santa Susana Mountains, foothills of the San Gabriel Mountains, and parts of the Santa Monica Mountains.
- **LRAs:** Cities or the County are financially responsible for wildfire suppression. LRAs in Los Angeles County include foothills of the Santa Susana and San Gabriel Mountains, and in the Verdugo Mountains, Santa Monica Mountains, Hollywood Hills, San Rafael Hills, Puente Hills, and in other hills in the central Los Angeles area.

SCAG REGION

Though wildland fires are a natural part of the ecological processes, in the past, it was presumed that all wildland fires should be extinguished promptly. This caused “protected” vegetation to grow denser, weakening vegetation in a struggle for living space and increasing destruction by pests and disease; and in turn, added fuel for future fire. In addition, the absence of fire can alter or disrupt the cycle of natural plant succession and the associated habitats that form. Recognizing this, land management agencies are now committed to finding ways, such as prescribed burning, to reintroduce fire into natural ecosystems. In addition, California has extended droughts, which increase dead and dying vegetation, dry fuel per acre volumes, and many days of low humidity. Furthermore, most wildfires in the region are caused by humans (e.g., wildfires resulting from campfires, improperly discarded matches, cigarettes, and other flammable materials, commercial and residential fires, power line accidents, and arson). This remains true even before accounting for the crisis of anthropogenic climate change, which has exacerbated wildfires. Wildfire increases the potential for runoff and erosion, as fire removes ecological stabilizers such as vegetation and healthy soil. In coastal regions and other areas with steep slopes, scorched land left after a wildfire is particularly susceptible to debris flow and other hazards.

SRAs and LRAs have been mapped in every county in the SCAG region (CAL FIRE 2007, 2023g). The majority of VHFHSZs are located where wildlands meet urbanized areas, usually near large recreation areas.

IMPERIAL COUNTY

Imperial County is a predominantly agricultural area and approximately 50 percent of County lands are undeveloped and under federal jurisdiction. The potential for a major fire in the unincorporated areas of the County is generally low.

From the standpoint of fire safety, building and fire codes are the tool most used by local jurisdictions. The County implements the Uniform Building Code (UBC) and the Uniform Fire Code (UFC) (Imperial County Municipal Code 2020; Imperial County Municipal Code 2010). The Imperial County Codified Zoning Ordinance also contains provisions which act to reduce fire hazards. The Imperial County Subdivision Ordinance is also used to reduce the risk of fire by securing, as a condition of subdivision of land, water systems of adequate size and pressure for firefighting, and adequate roadway widths for emergency service vehicle access including maneuverability of fire trucks (Imperial County Planning & Development Services 1998). Additionally, the

County's Fire Prevention and Explosives Ordinance contains provisions for the purpose of prescribing regulations governing conditions hazardous to life and property from fire or explosion. This program enables the public to be better prepared when an emergency fire situation occurs.

Imperial County's Fire Prevention Bureau runs the Imperial County Fire Prevention Program. The purpose of the Imperial County Fire Prevention Program is to assist in preventing injuries, deaths, business interruption and property damages resulting from fires and other emergencies. The Fire Prevention Bureau currently enforces the 2010 California Fire, Building, Electrical, County Ordinances, as amended by the County of Imperial Municipal Code, in addition to National Fire Protection Association standards; Title 19, of the California Public Safety Code; and the California Health and Safety Code (Imperial County Fire Department & Office of Emergency Services 2023).

Imperial County has virtually no VHFHSZs, with only extremely small areas located near the northwest and southwest corners of the county (CAL FIRE 2022c).

LOS ANGELES COUNTY

Northern and western Los Angeles County feature vast swaths of wildland areas. The County's largest wildland area is the Angeles National Forest, a 700,000-acre forest that stretches across northern Los Angeles County between Gorman and Mt. Baldy. Much of the forest is marked by dense chaparral shrubs and woodlands. The Santa Monica Mountains National Recreation Area, a 150,000-acre area in the western portion of Los Angeles County, is comprised of several contiguous open space areas, including Malibu Creek State Park, Topanga State Park, and Leo Carrillo State Park. The Woolsey Fire in November 2018 burned 88 percent of all National Park Service acres within the park boundary. Following the Woolsey Fire, a wet winter allowed black mustard plants to quickly establish a presence in the area. This non-native plant quickly dries and provides fuel for future fires.

In Los Angeles County, heavily urbanized areas in the northwest and southern parts of the County are largely excluded from VHFHSZ designations, whereas communities near Topanga State Park and Angeles National Forest are at a much higher risk of wildfire impacts. However, even densely populated areas may be designated as VHFHSZs depending on their proximity to wildlands, such as the highly urbanized area surrounding the Kenneth Hahn State Recreation Area in Los Angeles (CAL FIRE 2023b). Examples of recent fires in Los Angeles County include the September 2020 Bobcat Fire in the Angeles National Forest and the October 2019 Getty Fire in the City of Los Angeles, which was ignited during strong Santa Ana wind conditions (Los Angeles Times 2019, 2020b).

ORANGE COUNTY

Orange County is highly urbanized with wildland areas located primarily in the east and southeast of the county. The largest wildland area is the Cleveland National Forest, a 460,000-acre forest partially located in Orange County along the boundary with Riverside County. The Cleveland National Forest is characterized by chaparral and a warm, dry Mediterranean climate. The South Coast Wilderness Area, located along the Orange County Coast between Newport Beach and Laguna Niguel, is comprised of several contiguous open space areas, including Crystal Cove State Park, Laguna Coast Wilderness Park, and Aliso and Wood Canyons Wilderness Park (CAL FIRE 2023c). These parks feature rugged coastal canyons, grasslands, and riparian woodlands. Wildfire increases the potential for runoff and erosion, as fire removes ecological stabilizers such as native vegetation and healthy soil and replaces them with invasive plants and debris. In addition, a portion of the 14,173-acre Chino Hills State Park is in northern Orange County and features chaparral plant communities.

CAL FIRE marks portions of the following cities as VHFHSZs: Aliso Viejo, Anaheim, Brea, Dana Point, Fullerton, Irvine, La Habra, Laguna Beach, Laguna Niguel, Laguna Woods, Lake Forest, Mission Viejo, Newport Beach, Orange, Rancho Santa Margarita, San Clemente, San Juan Capistrano, Tustin, Villa Park, and Yorba Linda.

RIVERSIDE COUNTY

With development growing into outlying hill and grassland areas and an increasing number of people owning homes and businesses in Riverside County, wildfires are becoming a growing and catastrophic hazard in the County. As more and more people are moving into areas of wildland-urban interface, the danger for wildfire conditions from the mix of fuels, topography, and accessibility, are posing increasing risks to residents, as well as to fire protection service providers. In some parts of Riverside County, fire danger can be worsened by steep, rugged topography, which would allow wildland fire to spread quickly and make it more difficult to fight.

The Riverside County Hazard Reduction Office, a division within the Riverside County Fire Department, enforces the abatement of hazardous vegetation and abandoned or neglected orchards, groves, and vineyards. The County's Hazard Abatement Program requires property owners to maintain 100 feet of defensible space between structures and vegetation. Guidelines on horizontal and vertical spacing of plants and trees are also enforced.

CAL FIRE's recommendations on VHFHSZs for Riverside County bisect the county into an eastern and western portion. Eastern Riverside County is primarily comprised of dry, desert land and is sparsely populated. Similar to Imperial, the eastern half of Riverside County contains essentially no VHFHSZs. Western Riverside County has a greater variety of climates, topography, and flora. The 800,000-acre San Bernardino National Forest is located in this half of Riverside County within a VHFHSZ. At the boundary with Orange County, the Cleveland National Forest is also a designated VHFHSZ. Additionally, several freeways in Riverside County are located within VHFHSZs, including I-15 between Lake Elsinore and Temecula, I-215 between Sun City and Murrieta, and SR-60 between Moreno Valley and Beaumont (CAL FIRE 2023d).

SAN BERNARDINO COUNTY

Most of San Bernardino County is in an FRA. Thus, fire protection is typically provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract to local government. The San Bernardino County Fire Protection District is one of the largest providers of fire protection services in these areas. Due to its dry, desert climate San Bernardino County has limited areas of VHFHSZs. The only VHFHSZs in the county are in the southwest corner, stretching along the San Gabriel Mountains from the county's western border to Yucca Valley (CAL FIRE 2023e). Most of the VHFHSZs in San Bernardino County are along its north and northeast edges at the foot of the San Bernardino and San Gabriel mountains; at its southeast margin in the north end of the San Timoteo Badlands; and in the southwest corner of the region in Chino Hills. Nearly the entire Mountain Region is mapped as VHFHSZ, while most of the desert regions are mapped outside of high or VHFHSZs. As of 2019, it is estimated that more than 34,000 residents in the unincorporated county live in VHFHSZs, and more than 63,000 live in HFHSZs (County of San Bernardino 2019).

VENTURA COUNTY

Much of Ventura County is considered a VHFHSZ and is primarily located in a SRA (CAL FIRE 2023f). Specifically, the central and northern portions of the County are part of the Los Padres National Forest, accounting for 46 percent of the overall landmass. The forest features semi-arid, chaparral vegetation, which is prone to wildfire.

The Fire Hazard Reduction Program is the cornerstone of Ventura County Fire Department's (VCFD) Wildland Fire Action Plan. In partnership with property owners and neighbors, VCFD recommends a 100-foot defensible space radius between structures and vegetation and places restrictions on certain types of vegetation (Ventura County Fire Code 2013).

Several freeways in Ventura County are located within VHFHSZs, including US-101 between Camarillo and Thousand Oaks, SR-33 between Ventura and Ojai, and SR-118 between Moorpark and Simi Valley. Much of the housing in these cities is located within an urban-wildland intermix area, and as such, wildfires and subsequent evacuations are a concern. In December 2017, the Thomas Fire burned through Ventura and Santa Barbara Counties and, as of 2023, remains the largest wildfire in the history of the SCAG region (CAL FIRE 2022d). The fire spread quickly, destroying hundreds of structures, prompting evacuations, and leading to deadly mudflows after a rainstorm the following month.

CLIMATE CHANGE

In the last decade (since the 2013 fire season), California has experienced eight of the state's 10 largest wildfires and seven of its 10 most destructive fires in its history (CAL FIRE 2022d). CAL FIRE's total funding for fire protection, resource management, and fire prevention has grown from \$800 million in 2005–2006 to an estimated \$3.7 billion in 2021–22 (California Legislative Analyst's Office 2023). Over the past five decades, summertime forest fires have increased in size by roughly 800 percent. Though no single wildfire can be attributed solely to climate change, evidence shows that the increase in average temperatures statewide is creating conditions more prone to wildfires (Williams et al. 2019). Additionally, rainfall which occurs after wildfires can result in debris flows which cause destructive impacts. For example, in December 2018, the Thomas Fire burned through Ventura and Santa Barbara Counties, leading to loss of vegetation and soil erosion along sloped hillsides. Subsequently, a strong storm poured five inches of rain onto charred hillsides over a short period of time on January 9, 2019. The storm resulted in deadly mudslides, caused extensive property damage, and caused the closure of US-101 for nearly two weeks (NASA 2018; Ventura County Star 2018). A similar incident occurred in Malibu as a result of a mudslide following the Woolsey Fire, which forced the closure of a 13-mile stretch of Pacific Coast Highway (ABC Los Angeles 2019). Furthermore, mudflows could expose people to hazards posed by ruptured methane gas pipelines, as occurred in Burbank in January 2018 following the La Tuna Fire of September 2017 (CBS Los Angeles 2018).

By 2100, it is estimated that climate change will cause the frequency of extreme rainfall following wildfires to increase by 100 percent in California, and more than 90 percent of extreme fire weather events will be followed by at least three extreme rainfall events within five years (Touma. et al. 2022). Southern California has warmed about three degrees Fahrenheit in the last century, and every additional increment of warming speeds up evaporation, dries out soil and vegetation, and increases the amount of fuel available for a wildfire (USEPA 2016). In 2020, wildfires in California released approximately 85.2 million tons of carbon dioxide (CARB 2021). Studies suggest that greenhouse gas emissions from wildfires create a positive feedback loop, wherein the emissions warm the planet further, leading to more wildfires and more emissions.

3.20.2 REGULATORY FRAMEWORK

FEDERAL

DISASTER MITIGATION ACT OF 2000

The Disaster Mitigation Act (DMA) 2000 (Public Law 106-390) provides the legal basis for the Federal Emergency Management Agency (FEMA)'s mitigation planning requirements for state, local and tribal governments as a condition of mitigation grant assistance. DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act by repealing the previous mitigation planning provisions and replacing them with a new set of requirements that emphasize the need for state, local, and tribal entities to closely coordinate mitigation planning and implementation efforts. The requirement for a state mitigation plan is continued as a condition of disaster assistance, adding incentives for increased coordination and integration of mitigation activities at the state level through the establishment of requirements for two different levels of state plans. DMA 2000 also established a new requirement for local mitigation plans and authorized up to 7 percent of Hazard Mitigation Grant Program funds available to a state for development of state, local, and tribal mitigation plans (FEMA 2020).

FEDERAL RESPONSE PLAN

The Federal Response Plan of 1999 is a signed agreement among 27 federal departments and agencies, including the American Red Cross, that (1) provides the mechanism for coordinating delivery of federal assistance and resources to augment efforts of state and local governments overwhelmed by a major disaster or emergency; (2) supports implementation of the Robert T. Stafford Disaster Relief and Emergency Act, as well as individual agency statutory authorities; and (3) supplements other federal emergency operations plans developed to address specific hazards. The Federal Response Plan is implemented in anticipation of a significant event likely to result in a need for federal assistance or in response to an actual event requiring federal assistance under a Presidential declaration of a major disaster or emergency (FEMA 1999).

FEDERAL EMERGENCY MANAGEMENT AGENCY REGULATIONS

The primary mission of FEMA is to reduce the loss of life and property and protect the nation from all hazards, including natural disasters, acts of terrorism, and other human-made disasters, by leading and supporting the nation in a risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation (Government Publishing Office 2022). SCAG is under the jurisdiction of FEMA Region 9, which covers Arizona, California, Hawaii, Nevada, Guam, American Samoa, Commonwealth of Northern Mariana Islands, Republic of Marshall Islands, Federated State of Micronesia, and more than 150 sovereign tribal entities. In Southern California, FEMA Region 9 specifically plans for hazards such as major earthquakes and wildfires (FEMA 2023).

NATIONAL FIRE PLAN

The Department of the Interior's National Fire Plan is intended to ensure an appropriate federal response to severe wildland fires, reduce fire impacts to rural communities, and ensure sufficient firefighting capacity in the future (U.S. Department of the Interior 2007). The Rural Fire Assistance program is funded to enhance the fire protection capabilities of rural fire districts and safe and effective fire suppression in the wildland-urban interface. The program promotes close coordination among local, state, tribal, and federal firefighting resources by conducting training, equipment purchase, and prevention activities on a cost-shared basis (U.S. Fish & Wildlife Service Fire Management 2009).

STATE

SENATE BILL 99

In November 2018, the Camp Fire devastated the town of Paradise, California, killing 86 people and destroying nearly 19,000 structures. One reason the Camp Fire was so deadly was the lack of adequate evacuation routes to simultaneously allow residents to leave and first responders to enter. Although modern developments require adequate ingress and egress routes, many existing developments, such as those in Paradise, predate these requirements. SB 99, signed into law on August 30, 2019, requires cities to identify in the safety element of their general plans any residential developments in any wildfire hazard areas that do not have at least two emergency evacuation routes (California Legislative Information. 2019a).

SENATE BILL 901

After record-breaking drought in California from 2011 to 2017, perfect wildfire conditions allowed faulty Pacific Gas & Electric (PG&E) Corp's utility lines to spark devastating fires that would scorch over 4,000 square miles of land across the state. In response to the deadly season, the California Legislature developed Senate Bill 901 (Utility Wildfire Management Plans) as the "centerpiece measure" in its attempt to rectify damages from the 2017 wildfires and prevent future wildfire disasters. SB 901 mandates all electric utilities to prepare and submit wildfire mitigation plans that describe the utilities' plan to prevent, combat, and respond to wildfires affecting their service territories. The California Public Utilities Commission (CPUC) will review and refine the plans before implementing and enforcing them. In the short-term, SB 901 allows PG&E to lean on its customers in paying for billions of dollars in fire-related damages. It also provides over \$1 billion for vegetation management over five years (CPUC 2021).

ASSEMBLY BILL 1054

Assembly Bill 1054 (AB 1054) was signed into law by Governor Gavin Newsom on July 12, 2019, creating a \$21 billion fund to help California's investor-owned utilities cover liabilities caused by wildfires. Under the legislation, the state's investor-owned utilities will put a combined \$5 billion toward improvements in their electrical grids to access the fund. Ratepayers will also contribute \$10.5 billion by way of a 15-year extension of an existing rate increase. The bill also imposes several conditions on utilities, including \$5 billion in safety investments and utility participation in a new annual safety certification process overseen by CPUC (California Legislative Information. 2019b). The legislation was passed in the wake of the Camp Fire, California's deadliest and most destructive wildfire in history. PG&E equipment failure was responsible for the blaze. PG&E sought bankruptcy protection after the Camp Fire so it could reorganize its finances to pay \$30 billion in liabilities from multiple wildfires (NYT 2019a).

SENATE BILL 1079

Senate Bill 1079 (SB 1079) (Forest Resources: Fire Prevention Grant Fees) builds from existing laws establishing grants to private entities, Native American tribes, and public agencies to assist in the implementation and administration of projects and programs relating to improving forest health and reducing greenhouse gas (GHG) emissions. SB 1079 authorizes CAL FIRE to make advance payments to grantees (such as fire safe councils, Native American tribe, or special district), which receive funds from the healthy forest and local fire-prevention grant programs.

SENATE BILL 1241

In 2012, Senate Bill 1241 (SB 1241) added Section 66474.02 to Title 7 Division 2 of the California Government Code, commonly known as the Subdivision Map Act. The statute prohibits subdivision of parcels designated very high fire hazard, or that are in an SRA, unless certain findings are made prior to approval of the tentative map. The statute requires that a city or county planning commission make three new findings regarding fire hazard safety before approving a subdivision proposal. The three findings are, in brief: (1) the design and location of the subdivision and its lots are consistent with defensible space regulations found in PRC Section 4290-91, (2) structural fire protection services will be available for the subdivision through a publicly funded entity, and (3) ingress and egress road standards for fire equipment are met per any applicable local ordinance and PRC Section 4290. The Occupational Safety and Health Act (29 Code of Federal Regulations [CFR] Parts 70 to 2400), which is implemented by the Federal Occupational Safety and Health Administration (OSHA), contains provisions with respect to hazardous materials handling. Federal OSHA requirements, as set forth in 29 CFR Section 1910 et seq., are designed to promote worker safety, worker training, and a worker's right-to-know. In California, OSHA has delegated the authority to administer OSHA regulations to the State of California.

ASSEMBLY BILL 301

Assembly Bill 301 (AB 301) was enacted to amend Section 4213.1, and to add Section 4213.2 to the Public Resources Code related to fire prevention. Section 4213.1 requires CAL FIRE to notify a property owner that the property's terms of sale could include a portion of the Fire Prevention Fee. Section 4213.2 allows a property owner to negotiate a portion of the fee as one of the terms of sale.

ASSEMBLY BILL 38 (CALIFORNIA EMERGENCY SERVICES ACT)

This bill requires the Natural Resources Agency, by July 1, 2021, and in consultation with the State Fire Marshal and the Forest Management Task Force, to review the regional capacity of each county that contains a very high fire hazard severity zone to improve forest health, fire resilience, and safety, as specified. On or after July 1, 2021, the bill would require a seller of real property located in a high or very high fire hazard severity zone to provide specified documentation to the buyer that the real property is in compliance with the wildfire protection measures or a local vegetation management ordinance, or enter into an agreement with the buyer pursuant to which the buyer will obtain documentation of compliance.

ASSEMBLY BILL 2551

Approved in 2018, Assembly Bill 2551 (AB 2551) Forestry and Fire Prevention: Joint Prescribed Burning Operation authorizes CAL FIRE to collaborate with private landowners on controlled burns to reduce wildfire fuel. Mismanagement of the forests can lead to a build-up of forest underbrush that serves as a perfect fuel for wildfires. By allowing small, non-industrial landowners to choose to individually implement various fire prevention programs, such as prescribed burns, AB 2551 promotes good, local forest management in the state.

STATE CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION REGULATIONS

CAL FIRE protects the people of California from fires, responds to emergencies, and protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens. CAL FIRE's firefighters, fire engines, and aircraft respond to an average of more than 5,600 wildland fires each year. The Office of the State Fire Marshal supports CAL FIRE's mission by focusing on fire prevention. It

provides support through a wide variety of fire safety responsibilities including regulating buildings in which people live, congregate, or are confined; controlling substances and products which may, in and of themselves, or by their misuse, cause injuries, death, and destruction by fire; providing statewide direction for fire prevention in wildland areas; regulating hazardous liquid pipelines; reviewing regulations and building standards; and providing training and education in fire protection methods and responsibilities (Office of the State Fire Marshal 2019).

CALIFORNIA HEALTH AND SAFETY CODE

Sections 13000 et seq. of the California Health and Safety Code include fire-related regulations for structural standards (similar to those identified in the California Building Code); fire protection and public notification systems; fire protection devices such as extinguishers and smoke alarms; standards for high-rise structures and childcare facilities; and fire suppression training. The State Fire Marshal is responsible for enforcement of these established regulations and building standards for all state-owned buildings, state-occupied buildings, and state institutions within California.

CALIFORNIA GOVERNOR'S OFFICE OF EMERGENCY SERVICES OPERATIONAL STRATEGIES

California Governor's Office of Emergency Services (Cal OES) is the Emergency Management authority for the State of California. The Cal OES began as the State War Council in 1943. With an increasing emphasis on emergency management, it officially became OES in 1970. On July 1, 2013, Governor Edmund G. Brown Jr.'s Reorganization Plan #2 eliminated the California Emergency Management Agency (Cal EMA); restored its powers, purposes, and responsibilities to Cal OES; and also merged it with the Office of Public Safety Communications. Cal OES' mission statement is the following: "Protect lives and property, build capabilities, and support our communities for a resilient California." OES operational strategies include (Governor's Office of Emergency Services 2017):

- **Meet basic human needs** – All possible efforts must be made to supply resources to meet basic human needs, including food, water, accessible shelter, medical treatment, and security during an emergency.
- **Address needs of individuals with disabilities or access and functional needs** – Individuals with disabilities and others with access and functional needs are disproportionately impacted during and after an emergency. The needs of individuals with disabilities or access and functional needs must be considered and addressed before, during, and after disasters.
- **Mitigate hazards** – As soon as practical, suppress, reduce, or eliminate hazards and/or risks to persons and property during the disaster response. Lessen the actual or potential effects or consequences of future emergencies.
- **Restore essential services** – Power, water, sanitation, accessible transportation, and other essential services must be restored as rapidly as possible to assist communities in returning to normal daily activities.
- **Support Community and Economic Recovery** – All members of the community must collaborate to ensure recovery operations are conducted efficiently, effectively, and equitably, promoting expeditious recovery of the affected areas.

CALIFORNIA PUBLIC RESOURCES CODE

Public Resources Code (PRC) Sections 4201–4204 and Government Code Sections 51175–89 direct CAL FIRE to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. FHSZs define the application of various mitigation strategies to reduce risk associated with wildland fires.

CALIFORNIA FIRE CODE

Part 9 of the 2022 California Building Standards Code (CBC) (California Code of Regulations Title 24) covers the California Fire Code (2022, Title 24, Part 9). The purpose of the California Fire Code is to establish the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures, and premises.

The purpose of the California Fire Code is to establish the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas. Several jurisdictions within the SCAG region have adopted the California Fire Code as part of their building regulations (Building Standards Commission 2022).

CALIFORNIA FIRE PLAN

The Fire Plan is a cooperative effort between the State Board of Forestry and Fire Protection and the California Department of Forestry and Fire Protection. By placing the emphasis on what needs to be done long before a fire starts, the Fire Plan looks to reduce firefighting costs and property losses, increase firefighter safety, and to contribute to ecosystem health. The current plan was adopted in 2018, which reflects CAL FIRE's goals of (1) fire prevention and suppression activities to protect lives, property, and ecosystem services, and (2) natural resource management to maintain the state's forests as a resilient carbon sink to meet California's climate change goals and to serve as important habitat for adaptation and mitigation (CAL FIRE 2018).

CALIFORNIA DISASTER ASSISTANCE ACT

The California Disaster Assistance Act (CCR Title 19, Chapter 6) authorizes the Director of the Cal OES to administer a disaster assistance program that provides financial assistance from the state for costs incurred by local governments as a result of a disaster event. Funding for the repair, restoration, or replacement of public real property damaged or destroyed by a disaster is made available when the Director concurs with a local emergency proclamation requesting state disaster assistance (Governor's Office of Emergency Services 2019).

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH REGULATORY PROGRAM

The Governor's Office of Planning and Research (OPR) serves the Governor and his Cabinet as staff for long-range planning and research and constitutes the comprehensive state planning agency (Government Code

Section 65040). OPR is empowered to draft CEQA Guidelines for adoption by the Secretary of Natural Resources in collaboration with the Natural Resources Agency. In January 2018, OPR transmitted its proposal for comprehensive updates to the CEQA Guidelines to the Natural Resources Agency, who finalized the updates in late 2018. The updated Guidelines became effective on December 28, 2018 (OPR 2018).

CALIFORNIA PUBLIC UTILITIES COMMISSION FIRE SAFETY RULEMAKING

In December 2017, CPUC issued Decision (D.) 17-12-024 adopting regulations to enhance fire safety in the High Fire Threat District (HFTD) and subsequently adopted CPUC's final fire threat map. This map, together with CAL FIRE's Tier 1 High Hazard Zones comprise the HFTD Map where stricter fire-safety regulations apply. These regulations include requiring utilities to prioritize safety hazards, maintain more stringent wire-to-wire clearances in certain areas, and prepare a fire prevention plan annually if they have overhead facilities in the HFTD. Further, electric utilities may disconnect service to customers who refuse to provide access to their property for the removal of trees that pose an immediate threat for contacting a power line (CPUC 2017).

BEST PRACTICES FOR ANALYZING AND MITIGATING WILDFIRE IMPACTS OF DEVELOPMENT PROJECTS UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

The State Office of the Attorney General has prepared guidance for lead agencies and CEQA practitioners regarding the analysis of wildfire impacts in CEQA documents (State of California Office of the Attorney General 2022). This guidance is designed to help lead agencies comply with CEQA when considering whether to approve projects in wildfire-prone areas. These areas are often in the wildland-urban interface, generally defined as the area where the built environment meets or intermingles with the natural environment. As noted above, CAL FIRE has classified lands based on fire risk, the highest being those classified as high or very high fire hazard severity zones. It has also identified areas where the State (as opposed to a local agency) has responsibility for firefighting. Particularly in these high-risk areas, but also throughout the wildland-urban interface, wildfire risks must be considered during the environmental review process for individual development projects. This guidance document provides suggestions for how best to comply with CEQA when analyzing and mitigating a proposed project's impacts on wildfire ignition risk, emergency access, and evacuation, and is aimed at proposed development projects, such as residential, recreational, or commercial developments. The extent to which it applies will inherently vary by project, based on project design and location. The guidance document does not impose additional requirements on local governments or alter any applicable laws or regulations. Rather, it is intended to provide guidance on some of the issues, alternatives, and mitigation measures that should be considered during the environmental review process. This guidance is based on the Office of the Attorney General's experience reviewing, commenting on, and litigating CEQA documents for projects in high wildfire prone areas, and is intended to assist lead agencies with their planning and approval of future projects. The guidance reflects current requirements and conditions and may need to be updated as changes occur.

OPR 2022 FIRE HAZARD PLANNING TECHNICAL ADVISORY

OPR's Fire Hazard Planning Technical Advisory is one in a series of technical advisories provided by OPR as a service to professional planners, land use officials, and CEQA practitioners (OPR 2022). OPR issues technical guidance on issues that broadly affect land use planning, including the application of CEQA. The goal of this technical advisory is to provide a robust planning framework for addressing fire hazards, reducing risk, and increasing resilience across California's diverse communities and landscapes. To accomplish this goal, it is essential that local agencies (i.e., cities and counties) develop and incorporate effective policies and implementation programs in their general plans and integrate their general plans with other relevant hazard and

risk reduction policies, plans, and programs. This advisory provides guidance on those policies and programs and is also intended to assist city and county planners in discussions with professionals from fire hazard prevention and mitigation, disaster preparedness, and emergency response and recovery agencies as they work together to develop effective fire hazard policies for the general plan. The Fire Hazard Planning technical advisory was first published in 2015. Pursuant to the requirements of SB 901 (2018) and AB 2911 (2018), as codified in Government Code Section 65040.21, OPR updated this document to include “specific land use strategies to reduce fire risk to buildings, infrastructure, and communities.” OPR prepared the most recent (2022) update “in consultation with the Department of Forestry and Fire Protection (CAL FIRE), the State Board of Forestry and Fire Protection (State Board), and other fire and safety experts.” Per Government Code Section 65040.21, OPR must update the guidance document “not less than once every eight years”.

LOCAL

COUNTY GENERAL PLANS

In addition to federal and state requirements, general plans and municipal codes of counties and cities in the SCAG region may include safety elements that goals and policies related protecting people and property from risks from wildfires and associated hazards.

IMPERIAL COUNTY GENERAL PLAN

The Land Use Planning and Public Safety and Emergency Preparedness Elements of the Imperial County General Plan have established goals related to protection of public health and safety for consideration in the land use planning process. The specified goals and objectives are intended to minimize potential hazards to public health and safety and prevent the loss of life and damage to properties and rely heavily on ensuring conformance with established applicable state codes. However, the Plan does not currently include any goals or policies relating directly to wildfire (Imperial County Planning & Development Services 2015). The Imperial County Multi-Hazard Mitigation Plan (MHMP), developed in 2021 in coordination with County and City planning partners, provides a framework to address and mitigate natural and human-caused hazards as defined by DMA 2000. The MHMP includes wildfire prevention plans, programs, and regulations pertinent to Imperial County, including VHFHSZ mapping, the Imperial County Codified Zoning Ordinance, the Imperial County Subdivision Ordinance, the Imperial County Fire Prevention and Explosives Ordinance, and the Fire Prevention Education Program. The MHMP concludes that there is very low potential for wildfires in Imperial County due to the desert and agriculture topography of the County (Imperial County Fire Department & Office of Emergency Services 2021).

LOS ANGELES COUNTY GENERAL PLAN

The Safety Element of the Los Angeles County General Plan 2035 Update, in conjunction with the All-Hazard Mitigation Plan prepared by the Chief Executive Office, Office of Emergency Management (CEO OEM), sets strategies for natural and man-made hazards in Los Angeles County (County of Los Angeles, Department of Regional Planning 2015). The 2014 All-Hazard Mitigation Plan, which has been approved by FEMA and Cal OES, includes a compilation of known and projected hazards in Los Angeles County (County of Los Angeles, Chief Executive Office – Office of Emergency Management 2014). Los Angeles County Regional Planning is in the process of preparing the Countywide Community Wildfire Protection Plan (CCWPP). The CCWPP will provide community-focused fire protection strategies for Los Angeles County unincorporated communities at risk for wildfire impacts (County of Los Angeles, Department of Regional Planning 2023a). A Community Wildfire Protection Ordinance (CWPO) is being developed concurrently with the CCWPP. The CWPO would amend the

Los Angeles County Code Title 21 (Subdivisions Code) and Title 22 (Planning and Zoning Code), thereby modifying existing regulations to new development in VHFHSZ, including specific requirements for new subdivisions and projects located in hillside areas (County of Los Angeles, Department of Regional Planning 2023b). Additionally, the Los Angeles County Planning Department is currently developing an Integrated Wildfire Safety Program (IWSP) in response to the 2018 Woolsey Fire and 2019 Tick Fire. The ISWP would establish a common wildfire planning framework for the County and facilitate the implementation of wildfire mitigation and recovery strategies (OPR 2023). Specific goals and policies related to fire hazards within the Safety Element of the County of Los Angeles General Plan include, but are not limited to:

- **Goal S:** An effective regulatory system that prevents or minimizes personal injury, loss of life, and property damage due to fire hazards.
 - **Policy S 3.1:** Discourage high density and intensity development in VHFHSZs.
 - **Policy S 3.2:** Consider climate change implications in fire hazard reduction planning for FHSZs.
 - **Policy S 3.3:** Ensure that the mitigation of fire related property damage and loss in FHSZs limits impacts to biological and other resources.
 - **Policy S 3.5:** Encourage the use of low-volume and well-maintained vegetation that is compatible with the area's natural vegetative habitats.
 - **Policy S 3.8:** Support the retrofitting of existing structures in FHSZs to help reduce the risk of structural and human loss due to wildfire.

ORANGE COUNTY GENERAL PLAN

The Safety Element of the Orange County General Plan provides for the protection of people and property from risks associated with hazards, including those affiliated with wildfire, through the implementation of mitigation measures as outlined in the California Emergency Plan, the California Master Mutual Aid Agreement, the Orange County Emergency Plan, the Orange County Operational Area Plan, San Onofre Nuclear Generating Station (S.O.N.G.S.) Plan, County of Orange and Orange County Fire Authority Hazard Mitigation Plan, and other emergency management plans. The Safety Element of the Orange County General Plan focuses primarily upon the County's planned response to extraordinary emergency situations associated with natural disasters, technological incidents, intentional acts of terrorism and nuclear protection operations. To reduce the County's susceptibility and vulnerability to extraordinary emergency situations, the Safety Element recommends continued emphasis is placed on several coordinated efforts (Orange County Planning & Development 2015):

- Mitigation
- Emergency planning
- Training of full-time, auxiliary, and reserve personnel
- Public awareness and education; and assuring the adequacy and availability of sufficient resources to cope with such emergencies

In December 2021, the Board of Supervisors adopted a new County of Orange and Orange County Fire Authority Hazard Mitigation Plan (HMP) in compliance with federal and state regulations. The HMP includes wildfire-related mitigation action items in concurrence with projects included in the General Plan, including the implementation of a real-time remote sensing and fire monitoring platform to monitor wildland areas in Orange County Alert Wildfire (County of Orange, Orange County Fire Authority 2021).

The County's Wildland Fire Defense Planning and Prevention oversees its READY! SET! GO! program, which aims to reduce wildland fire risk through a formalized fuel modification inspection and enforcement program and monitors wildland and vegetation conditions to identify potential hazards, ensuring communities in the wildland urban interface areas are better protected from the risk of wildland fire. Specific applicable goals and policies related to fire safety within the Safety Element of the Orange County General Plan are:

- **Goal 1:** Provide a safe living environment, ensuring adequate fire protection facilities and resources to prevent and minimize the loss of life and property fire.
 - **Policy 1:** To encourage periodic updating of fire hazard mapping and continue to analyze existing fire hazard data as it pertains to Orange County.
 - **Policy 13:** To improve emergency response times for emergency responders through the use of computer-aided dispatch system and "preempt traffic signal control" system.

RIVERSIDE COUNTY GENERAL PLAN

The Safety Element of the Riverside County General Plan addresses fire hazards through policies related to building code and conformance standards, wind-related hazards, and general and

long-range fire safety planning. Due to the rugged topography and vegetation coverage that characterizes significant portions of the County, the Safety Element recognizes wildfire hazard as the highest-priority hazard in the County with the greatest potential for catastrophic damage and loss of life. The following goals and policies related to wildfire hazards are within the Safety Element of the Riverside County General Plan (Riverside County Planning Department 2021):

- **Goal 4.1:** All development and construction within Fire Hazard Severity Zones shall be reviewed by the Riverside County Fire Department and Building and Safety Department for consistency with the following requirements before the issuance of any building permits: (AI 25, 81.1, 81.2, 104.1).
 - **Policy C:** Proposed development and construction in Fire Hazard Severity Zones shall provide secondary public access, in accordance with Riverside County ordinances, where required. There shall be multiple points of ingress and egress that allow for emergency response vehicle access. Points of access shall also include visible street addresses and signs and sufficient water supplies, infrastructure for structural fire suppression, and other applicable local and state requirements.
 - **Policy D:** Proposed development and construction in Fire Hazard Severity Zones shall use single loaded roads to enhance fuel modification areas, unless otherwise determined by the Riverside County Fire Chief.
 - **Policy E:** Proposed development and construction in Fire Hazard Severity Zones shall provide a defensible space or fuel modification zones to be located, designed, constructed, and maintained to provide adequate defensibility from wildfires.
 - **Policy F:** Prior to the approval of all parcel maps and tentative maps, the County shall require, as a condition of approval and as feasible and appropriate, the developer meet or exceed the State Responsibility Area Fire Safe Regulations and the Fire Hazard Reduction Around Buildings and Structures Regulations, particularly those regarding road standards for ingress, egress, and fire equipment access (see Gov. Code, Section 66474.02.).
 - **Policy G:** Proposed development and construction of more than four residential units or more than 10,000 square feet of nonresidential space located in Very High Fire Hazard Severity Zones, or other

appropriate zones as determined by the Riverside County Fire Department, shall submit and implement a fire protection plan as feasible and appropriate. This plan shall include provisions for roadways and access, firefighting infrastructure, signage, vegetation management, construction materials, and evacuations.

- **Goal 4.3:** Monitor fire-prevention measures (e.g., fuel reduction) through a site-specific fire-prevention plan to reduce long-term fire risks in Very High Fire Hazard Severity Zones. (AI 25, 88).
- **Goal 4.5:** Require proposed development in High or Very High Fire Hazard Severity Zones be located where fire and emergency services are available or will be constructed as part of the proposed development activities, to the extent such locations are available. These services should meet the minimum response times as established by the Riverside County Fire Department. (AI 60, 61).
- **Goal 4.8:** Locate new critical public facilities outside of High or Very High Fire Hazard Severity Zones or other areas facing elevated risk of wildfire events. Critical facilities include emergency shelters, emergency command and communication facilities, and hospital and healthcare centers. If no feasible alternative site exists, ensure that these facilities incorporate all necessary protections to allow them to continue to serve community needs during and after disaster events. (AI 25, 60).

SAN BERNARDINO COUNTY GENERAL PLAN

The San Bernardino County General Plan contains a Hazards Element, which addresses wildfires. It mandates the development of Community Wildfire Protection Plans for mountain communities, compliance with the County's Tree Preservation Ordinance, improvements to public notification systems, and the continued monitoring of post-wildfire debris flow hazard evaluation and prediction methodologies. The CAL FIRE San Bernardino County Unit's (SBCU) 2020/2021 Strategic Fire plan provides a framework to address and mitigate wildfire risks to communities and natural ecosystems within SRA and wildland contract areas within San Bernardino, Los Angeles, Inyo, and Mono Counties. The Strategic Fire Plan identifies priority projects and wildfire mitigation measures for each of the fire battalions within the SBCU (CAL FIRE 2020b): Specific applicable goals and policies of the General Plan related to fire hazards within the Hazards Element of the County of San Bernardino General Plan include, but are not limited to (County of San Bernardino 2022):

- **Goal HZ-1: Natural Environmental Hazards** – Minimized risk of injury, loss of life, property damage, and economic and social disruption caused by natural environmental hazards and adaptation to potential changes in climate.
 - **Policy HZ-1.2: New development in environmental hazard areas.** We require all new development to be located outside of the environmental hazard areas listed below. For any lot or parcel that does not have sufficient buildable area outside of such hazard areas, we require adequate mitigation, including designs that allow occupants to shelter in place and to have sufficient time to evacuate during times of extreme weather and natural disasters.
 - Flood: 100-year flood zone, dam/basin inundation area
 - Geologic: Alquist Priolo earthquake fault zone; County-identified fault zone; rockfall/debris-flow hazard area, medium or high liquefaction area (low to high and localized), existing and County-identified landslide area, moderate to high landslide susceptibility area)
 - Fire: high or very high fire hazard severity zone
 - **Policy HZ-1.7: Underground utilities.** Underground utilities are required to be designed to withstand seismic forces, accommodate ground settlement, and be hardened to fire risk.

- **Policy HZ-1.9: Hazard areas maintained as open space.** We minimize risk associated with flood, geologic, and fire hazard zones or areas by encouraging such areas to be preserved and maintained as open space.
- **Policy HZ-1.13: Fire protection planning.** We require that all new development in County-designated Fire Safety Overlay and/or CAL FIRE-designated Very High Fire Hazard Severity Zones meet the requirements of the California Fire Code and the California Building Code as amended by the County Fire Protection District, including Title 14 of the California Code of Regulations fire safety requirements for any new development within State Responsibility Areas, as well as provide and maintain a Fire Protection Plan or Defensible Space/Fuel Modification Plan and other pre-planning measures in accordance with the County Code of Ordinances.
- **Policy HZ-1.14: Long-term fire hazard reduction and abatement.** We require proactive vegetation management/hazard abatement to reduce fire hazards on existing private properties, along roadsides of evacuation routes out of wildfire prone areas, and other private/public land where applicable, and we require new development to enter into a long-term maintenance agreement for vegetation management in defensible space, fuel modification, and roadside fuel reduction in the Fire Safety Overlay and/or Very High Fire Hazard Severity Zones.
- **Policy HZ-1.15: Evacuation route adequacy.** We coordinate with CAL FIRE, California’s Office of Emergency Services, and other local fire districts to identify strategies that ensure the maintenance and reliability of evacuation routes potentially compromised by wildfire, including emergency evacuation and supply transportation routes.

VENTURA COUNTY GENERAL PLAN

The Safety Element of the Ventura County General Plan contains specific goals to minimize the risk of loss of life, injury, serious illness, damage to property, and economic and social dislocations resulting from fire hazards and wildfire. Additionally, the Plan identifies HFHSZs and lists specific management practices to protect those who currently live within such a zone and prepare appropriate development and management in the future. The County’s Multi-jurisdictional Hazard Mitigation Plan (HMP) was adopted by the Board of Supervisors on July 12, 2022, and approved by FEMA on August 16, 2022. The HMP includes objectives related to mitigating the risk of wildfires, such as greenbelts and fire breaks around communities and along roadways (County of Ventura 2022). Specific policies related to fire hazards within the Safety Element of the Ventura County General Plan include, but are not limited to (County of Ventura 2019):

- Minimize the risk of loss of life, injury, damage to structures, and economic and social dislocations resulting from fire hazards.
- Ensure that development in high fire hazard areas is designed and constructed in a manner that minimizes the risk from fire hazards.
- Require at least two means of access for emergency vehicles and resident evacuation for new residential subdivisions, except if otherwise permitted by County Fire Chief.

CITY GENERAL PLANS

The SCAG region spans six counties and 191 cities, each of which has a general plan that contains policies related to hazards, including those related to fires. Additional plans and ordinances at the master plan level, city-level, and specific plan level may also apply within the SCAG region. Furthermore, fire departments and other agencies in the SCAG region have a variety of local laws that regulate reporting, storage, handling, and

transporting hazardous substances and materials (refer to Section 3.9, *Hazards and Hazardous Materials*, of this 2024 PEIR for further information).

3.20.3 ENVIRONMENTAL IMPACTS

THRESHOLDS OF SIGNIFICANCE

For the purposes of this 2024 PEIR, SCAG has determined that adoption and/or implementation of the Plan could result in significant adverse impacts related to wildfire risk, if transportation projects and land use development projects are located in or near SRAs or lands classified as very high hazard severity zones and would exceed any of the following significance criteria, in accordance with California Environmental Quality Act (CEQA) Guidelines Appendix G:

- Substantially impair an adopted emergency response plan or emergency evacuation plan (this criterion is addressed in Section 3.17, *Transportation*);
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
- Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

In addition, the following criterion from Section 3.9, *Hazards and Hazardous Materials*, is addressed along with wildfire:

- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires

METHODOLOGY

Chapter 2, *Project Description*, describes the Plan's vision, goals, policies, forecasted regional development pattern, policies and strategies, and individual transportation projects and investments. The Plan aims to increase mobility, promote sustainability, and improve the regional economy. Although land use development is anticipated to occur within the region even without the Plan, the Plan could influence growth, including distribution patterns. To address this, the 2024 PEIR includes an analysis on the implementation of policies and strategies as well as potential projects and evaluates how conditions in 2050 under the Plan would differ from existing conditions. The analysis of wildfire considered public comments received on the NOP and feedback and discussions at the various public and stakeholder outreach meetings.

The methodology for determining the significance of the Plan's impacts to wildfire response and related hazards and infrastructure compares the existing (2022) conditions to future (2050) conditions. Wildfire conditions and hazards within the SCAG region were evaluated at the programmatic level of detail, in relation to the general plans of the six counties and 191 cities within the SCAG region; the management plans for the four national forests in the SCAG region, Angeles National Forest, San Bernardino National Forest, Los Padres National Forest,

and Cleveland National Forest; the California Department of Forestry and Fire Protection, and a review of related literature germane to the SCAG region.

This analysis considers the Plan's impacts on wildfire hazards, provides mitigation measures, where necessary, and addresses the environmental effects related to wildfire hazards. The potential for impacts related to wildfire was assessed by examining the transportation projects and potential land use development resulting from the Plan in relation to the fire hazard severity zones in the six counties within the SCAG region. Because implementation of the Plan could result in some projects located in or near SRAs or lands classified as very high hazard severity zones, all potential wildfire impacts are analyzed below.

As discussed in Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*, Connect SoCal 2024 includes Regional Planning Policies and Implementation Strategies some of which will effectively reduce impacts in the various resource areas. Furthermore, compliance with all applicable laws and regulations (as set forth in the Regulatory Framework) would be reasonably expected to reduce impacts of the Plan. See CEQA Guidelines Section 15126.4(a)(1)(B). As discussed in Section 3.0, *Introduction to the Analysis*, where remaining potentially significant impacts are identified, SCAG mitigation measures are incorporated to reduce these impacts. If SCAG cannot mitigate impacts of the Plan to less than significant, project-level mitigation measures are identified which can and should be considered and implemented by lead agencies as applicable and feasible.

IMPACTS AND MITIGATION MEASURES

IMPACT WF-1 Substantially impair an adopted emergency response plan or emergency evacuation plan.

As discussed in Section 3.0, *Introduction to the Analysis*, due to the similarities of the topic areas, Impact WF-1 is addressed together with Impacts HAZ-6 and TRA-4 in Section 3.9, *Hazards and Hazardous Materials*, of this 2024 PEIR.

IMPACT WF-2 Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.

IMPACT HAZ-7 Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

Significant and Unavoidable Impact – Mitigation Required

As discussed in Section 3.0, *Introduction to the Analysis*, due to the similarities of the topic areas, Impacts WF-2 and HAZ-7 are addressed together.

The SCAG region is susceptible to wildfires particularly during the summer and fall seasons, especially during Santa Ana wind conditions. Wildfires have the potential to occur not only in fire-prone undeveloped areas, but also in developed areas where existing transmission lines, lightning strikes, lawn equipment operated over dry grass, fireworks, and even arson may ignite a wildfire. While the urban and developed areas of Riverside, San Bernardino, Imperial, and Ventura counties, may include fire resistant and drought tolerant plants that offer

some protection to existing structures, these counties also have more undeveloped areas susceptible to wildfire risks than Los Angeles and Orange counties. According to the FHSZ maps for the area, the rural areas in the SCAG region range from Moderate FHSZs to VHFHSZs under the State's classification system (CAL FIRE 2022a). Population in the SCAG region is expected to grow by over two million people (10.9 percent) by 2050 (with or without the Plan). The Plan focuses the majority of the region's future growth within Priority Development Areas (PDAs) and away from Green Region Resource Areas (GRRAs) but recognizes inherent constraints to expansive regional growth and anticipates that some population growth would still occur in areas at risk of wildfire, natural hazards and changing climate. Because of this, Connect SoCal 2024 sets forth land use strategies that encourage conservation of farmland, resource areas and habitat corridors, and guide growth away from lands that are vulnerable to wildfire, flooding, and near-term sea-level rise. Relevant discussions regarding the Plan's environmental impacts related to farmland conservation, biological resources and associated habitats, and flooding (including flooding from sea level rise) are located in Section 3.2, *Agriculture and Forestry Resources*, Section 3.4, *Biological Resources*, and Section 3.10, *Hydrology and Water Quality*, respectively, of this 2024 PEIR.

During peak wildfire season where high winds and low humidity may occur, electrical utilities have started to implement Power Safety Power Shut Off (PSPS) events to preemptively shut off power to customers in wildfire-prone areas as a precautionary measure (refer to Section 3.6, *Energy*, of this 2024 PEIR for further information). For example, Southern California Edison began PSPS events in 2017 and notifies customers two days in advance. At the direction of CPUC, customers who live in high fire risk areas, as defined by CPUC maps, are more likely to experience a PSPS (SCE 2023). Since 2019, SCE has performed 1,876 PSPS events lasting a combined 1,965 days, with 14 PSPS events lasting a combined 18 days in 2022 (CPUC 2022a). Another major de-energization event lasted from November 21 to November 25, 2022, and affected the Ventura, Los Angeles and Riverside Counties (CPUC 2022b). Inclement weather conditions that could potentially damage electrical utilities infrastructure resulting in wildfires (e.g., strong winds, heat events) may trigger a PSPS event. It is not feasible to anticipate the frequency of PSPS events and analyze their effects in this 2024 PEIR without undue speculation. PSPS events are considered an event of last resort due to the hardships that sustained power outages can have on SCE customers. If a PSPS event were to occur, it would likely be temporary.

The ongoing crisis of climate change has worsened wildfire conditions in California and the SCAG region. Since the early 1970s, California's annual wildfire extent increased fivefold, punctuated by extremely large and destructive wildfires in 2017, 2018, and 2021 (CAL FIRE 2022b). This trend was mainly due to an eightfold increase in summertime forest-fire area and was very likely driven by drying of fuels promoted by human-induced warming (Williams et al. 2019). Since climate change makes droughts more frequent and severe and makes temperatures warmer in California, the drying of fuels is likely to continue worsening conditions in wildfire-prone areas of the SCAG region.

Wildfires pose a significant public health risk due to their air quality impacts, particularly with regard to smoke and particulate matter exposure. This risk persists even after a wildfire is extinguished because particulate matter from fire ash can be picked up by winds. In addition, as discussed in Section 3.8, *Greenhouse Gas Emissions*, of this 2024 PEIR, wildfires release substantial amounts of greenhouse gases. As discussed in Section 3.3, *Air Quality*, of this 2024 PEIR, wildfires release substantial amounts of criteria air pollutants, particularly particulate matter.

Connect SoCal 2024 de-emphasizes 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 2024's conservation strategies seek to avoid growth in wetlands, wildlife corridors,

biodiverse areas, wildfire prone areas and floodplains. The Plan includes natural and farm lands conservation strategies to support the conservation of habitats that are prone to hazards exacerbated by climate change such as wildfires.

Creating 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 an emphasis on compact development, Connect SoCal 2024’s conservation strategies promote the economic and ecological benefits of preserving natural areas and farmlands, while also maximizing their potential for greenhouse gas reduction. As discussed in Chapter 2, *Project Description*, the Plan focuses new housing and employment growth in PDAs and away from GRRAs. 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. Natural lands conservation has the co-benefit of protecting communities from major hazards caused or exacerbated by climate change, such as wildfires and flooding.

Furthermore, wildfire-prone areas tend to pose accessibility challenges for vehicular access points due to topography. These roads could face more gridlock in the event of a sudden emergency evacuation than flat, urbanized areas may experience. Such circumstances could expose vehicle occupants to active flames and potential death, as was seen in the Camp Fire in Paradise and the Woolsey Fire in Malibu in 2018 (NYT 2019b).

While the Plan focuses development in PDAs, SCAG recognizes that with additional 1.6 million housing units by 2050 will result in some development near natural wildland areas which may have a greater wildfire risk. Furthermore, given that the specific locations and details of projects consistent with the Plan are mostly unknown at this time, the projects may be located in wildlife-prone areas which could potentially exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from wildfires, the uncontrolled spread of wildfires, or exposure of people or structures to a significant risk of loss, injury or death involving wildland fires particularly those populations living downwind of the fire. As such, impacts are considered significant and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See **SMM-GEN-1**, **SMM-HAZ-1**, **SMM-HAZ-2**, **SMM-HYD-1**, **SMM-LU-1** through **SMM-LU-3**, and **SMM-POP-1** and **SMM-POP-2**.

SMM-WF-1 SCAG shall continue to provide a regional forum for collaboration in planning, communication, and information sharing on best practices around wildfire resilience.

PROJECT-LEVEL MITIGATION MEASURES

See **PMM-HAZ-5**

PMM-WF-1 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to reduce

wildfire risk, as applicable and feasible. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a) Launch fire prevention education for local cities and counties such that local fire agencies, homeowners, as well as commercial and industrial businesses are aware of potential sources of fire ignition and the related procedures to curb or lessen any activities that might initiate fire ignition.
- b) Ensure structures in high fire risk areas are built to current state and federal standards which serve to greatly increase the chances the structure will survive a wildfire and also allow for people to shelter-in-place.
- c) Improve road access for emergency response and evacuation so people can evacuate safely and timely when necessary.
- d) Improve, and educate regarding, local emergency communications and notifications with residents and businesses.
- e) Enforce defensible space regulations to keep overgrown and unmanaged vegetation, accumulations of trash and other flammable material away from structures.
- f) Provide public education about wildfire risk and fire prevention measures, and safety procedures and practices to allow for safe evacuation and/or options to shelter-in-place.
- g) Include external sprinklers with an independent water source to reduce flammability of structures.
- h) Include local solar power paired with batteries to reduce power flow in electricity lines.
- i) For developments in high fire-prone areas, have a fire protection plan for residents and businesses.
- j) Provide fire hazard and fire safety education for homeowners in or near fire hazard areas.
- k) Developments in fire-prone areas should have fire-resistant feature, such as:
 - 1) Ember-resistant vents
 - 2) Fire-resistant roofs
 - 3) Surrounding defensible space
 - 4) Proper maintenance and upkeep of structures and surrounding area

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to exacerbating wildfire risk and exposure of residents to pollutants and exposure of people or structures to a significant risk of loss, injury or death involving wildland fires, due to the regional nature of the analysis, unknown site conditions and

project-specific details, and SCAG’s lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT WF-3 **Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risks or that may result in temporary or ongoing impacts to the environment.**

Significant and Unavoidable Impact – Mitigation Required

The SCAG region is a mix of urban and rural communities, natural woodland areas, as well as semi-desert areas. Future development and/or re-development in these areas has the potential to require the installation of new roadways or infrastructure facilities such that there is an increased risk of new ignition sources generating the spread of wildfires. Areas with dry vegetation have the potential to exacerbate wildfire risk due to future development activities that could generate flammable debris piles. This is particularly true in the rural and underdeveloped parts of the SCAG region. Future roadway and development construction in such areas, while likely to be less in the future, may still occur, such development has the potential to result in significant impacts as a result of construction equipment generating sparks or oil spill and other combustible materials leading to the start and spread of wildfires. Newer electrical equipment providing power to any new homes developed in fire prone areas is anticipated to be fitted with fire-safe devices, but hazards may remain as a result of electricity infrastructure as well as common fire hazards associated with human habitation.

The Plan encourages growth in PDAs and away from GRRAs. As discussed above, natural lands conservation has the co-benefit of protecting communities from major hazards caused or exacerbated by climate change, such as wildfires and flooding. Nonetheless, it is expected that new development will also occur in rural or suburban areas which may have a greater wildfire risk. Increased development, in combination with a push for more electrical infrastructure (e.g., SB 100), may result in increased wildfire risk due to power lines (refer to Section 3.6, *Energy*, of this 2024 PEIR for further information on SB 100). As discussed under Impact WF-2, SCE maintains a PSPS policy to shut off power to its lines during high wildfire probability events (i.e., when conditions are such that wildfire is a high probability) which would help to reduce potential impacts (SCE 2023). In addition, many local jurisdictions and plans require undergrounding of electrical infrastructure which also helps to reduce risk of wildfire. Nevertheless, the Plan may result in development in urban/wildlands interface areas which would necessitate infrastructure such as power poles that could result in wildfire risk. As such, significant impacts may occur, and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-WF-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-HAZ-4.

PMM-WF-2 In accordance with provisions of Sections 15091(a)(2) and 15126.4(a)(1)(B) of the State CEQA Guidelines, a Lead Agency for a project can and should consider mitigation measures to wildfire

risk, as applicable and feasible. Such measures may include the following or other comparable measures identified by the Lead Agency:

- a) New development or infrastructure activity within very high hazard severity zones or SRAs to:
 - 1) Submit a fire protection plan including the designation of fire watch staff;
 - 2) Maintain water and other fire suppression equipment designated solely for firefighting on site for any construction and maintenance activities;
 - 3) Locate construction and maintenance equipment in designated "safe areas" such that they do not discharge combustible materials; and
 - 4) Designate trained fire watch staff during project construction to reduce risk of fire hazards.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to the installation or maintenance of associated infrastructure that may exacerbate fire risks or that may result in temporary or ongoing impacts to the environment, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

IMPACT WF-4 **Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope stability, or drainage changes.**

Significant and Unavoidable Impact – Mitigation Required

Wildfires are becoming more common and intense in all areas within the SCAG region. Connect SoCal 2024 identifies an additional 1.6 million housing units by 2050, the majority of which are anticipated to be located within PDAs. However, SCAG acknowledges some development may occur towards, and through natural wildland areas and in wildfire prone areas (VHFHSZs). Development within potential fire-prone areas would create situations where people and property could be impacted by wildfire and associated subsequent hazards (flooding, landslides, etc.). Intense rainfall may also occur during the winter months, creating natural flooding events when the ground is saturated and water levels are high. This has the potential for flooding issues, and fire hazards may exacerbate such flooding and debris flows along waterways. Since debris flows may occur quickly and without warning, such flows can damage structures, block drainage, or even sweep away vegetation resulting in tenuous post-fire slope stability. Fast moving debris flows can be one of the most dangerous post-fire hazards. Due to the loss of vegetation and potential resulting soil erosion, debris flows may cause a risk to life and physical property, destroy or strip vegetation, block existing drainage patterns, and impact roadways

and other infrastructure. If this were to occur within the 100-year floodplain areas, existing flow conditions may be altered, or new sources of flooding may be created (refer to Section 3.7, *Geology and Soils*, and Section 3.10, *Hydrology and Water Quality*, in this 2024 PEIR). This has the potential to alter peak flow conditions and affect upstream, as well as downstream areas. Typically, debris flow from fire damaged areas may be a result of excessive rainfall runoff and surface erosion, since previously-burned slopes repel water and generate higher runoff rates. This can be especially true in the higher elevation areas, with steep slopes and limited drainage basins. Post-fire debris flows are typically triggered by heavy rainfall in areas already damaged by recent wildfire events, and susceptible to soil erosion. Debris flows could affect both the transportation network, utilities, and new development. Development of homes and infrastructure is anticipated to continue to occur in areas of the region that are subject to wildfire hazards and significant risks for people and structures, despite the Plan's focus on adding development to existing urban areas. Therefore, the impacts may be significant, and mitigation measures are required.

MITIGATION MEASURES

SCAG MITIGATION MEASURES

See SMM-LU-1 through SMM-LU-3, SMM-WF-1, and SMM-HYD-1.

PROJECT-LEVEL MITIGATION MEASURES

See PMM-WF-1, PMM-WF-2, PMM-HYD-1, and PMM-HAZ-4.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As previously discussed, the Plan's Regional Planning Policies and Implementation Strategies (see Chapter 2, *Project Description*, and Section 3.0, *Introduction to the Analysis*) and compliance with existing laws and regulations would reduce impacts; however, given the regional scale of the analysis in this 2024 PEIR, it is not possible or feasible to determine if all impacts would be fully mitigated. Therefore, this 2024 PEIR identifies SCAG and project-level mitigation measures. At the project level, lead agencies can and should consider the identified project-level mitigation measures during subsequent review of transportation and land use projects as appropriate and feasible. While the mitigation measures will reduce the impacts related to exposing people and structures to significant risks, as a result of runoff, post-fire slope stability, and drainage changes, due to the regional nature of the analysis, unknown site conditions and project-specific details, and SCAG's lack of land use authority over individual projects, SCAG finds that the impact could be **significant and unavoidable** even with mitigation.

CUMULATIVE IMPACTS

Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional-scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in of itself, would result in significant adverse environmental impacts with respect to wildfire, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

3.20.4 SOURCES

- ABC Los Angeles. 2019. *PCH could stay closed until Tuesday near Malibu after mudslides*. January 7, 2019. <https://abc7.com/weather/pch-could-stay-closed-until-tuesday-after-mudslides/5024931/>. Accessed March 6, 2023.
- Assembly Bill No. 38. State agencies: California Emergency Management Agency.
- Assembly Bill No. 301. State responsibility areas: fire prevention fees.
- Assembly Bill No. 1054. Public utilities: wildfires and employee protection.
- Assembly Bill No. 2551. Forestry and fire prevention: joint prescribed burning operations: watersheds.
- Building Standards Commission. 2022. California Building Standards Code. <https://www.dgs.ca.gov/BSC/Codes>. Accessed March 6, 2023.
- California Air Resources Board (CARB). 2021. *Wildfire Emissions Estimates for 2021*. <https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/Wildfire%20Emission%20Estimates%202000-2021.pdf>.
- California Department of Forestry and Fire Protection (CAL FIRE). 2007. *Draft Fire Hazard Severity Zones in Local Responsibility Area*. September 7, 2007. https://osfm.fire.ca.gov/media/6827/fhszl06_1_map.pdf.
- CAL FIRE. 2017. *Informational Report for State Responsibility Area Fire Prevention Fee: Fiscal Year 2016-2017*. <https://34c031f8-c9fd-4018-8c5a-4159cdf6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/what-we-do/grants/wildfire-prevention/state-responsibility-area/state-responsibility-area-fire-prevention-fee-annual-report/report-for-sra-fire-prevention-fee-fy16-17.pdf?rev=26b5332394a446c29b62235c4e3d3534&hash=28304C2F45175F56DA1289C316D0B96C>.
- CAL FIRE. 2018 *Strategic Fire Plan for California*. https://osfm.fire.ca.gov/media/5590/2018-strategic-fire-plan-approved-08_22_18.pdf.
- CAL FIRE. 2020a. *2020 Wildfire Activity Statistics*. https://34c031f8-c9fd-4018-8c5a-4159cdf6b0d-cdn-endpoint.azureedge.net/-/media/calfire-website/our-impact/fire-statistics/2020_redbook_final.pdf?rev=72030b4d2cb7466aa573754ecb4f656e&hash=337DB407876BE384081C7D722D82B1BF.
- CAL FIRE. 2020b. *2020/2021 Strategic Fire Plan for the San Bernardino Unit*. <https://osfm.fire.ca.gov/media/ixcfaefc/2020-bdu-fire-plan.pdf>.
- CAL FIRE. 2022a. *Fire Hazard Severity Zone Maps*. <https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-preparedness/fire-hazard-severity-zones/fire-hazard-severity-zones-map/>. Accessed March 6, 2023.
- CAL FIRE. 2022b. *Incidents: 2017-2021*. <https://www.fire.ca.gov/incidents>. Accessed March 6, 2023.
- CAL FIRE. 2022ce. *Imperial County: Fire Hazard Severity Zones in SRA*. https://osfm.fire.ca.gov/media/6680/fhszs_map13.pdf.
- CAL FIRE. 2022d. *Statistics*. Available online at: <https://www.fire.ca.gov/our-impact/statistics>. Accessed March 20, 2023.
- CAL FIRE. 2023a. *About*. <https://www.fire.ca.gov/abouthttps://www.fire.ca.gov/about-us/>. Accessed March 6, 2023.
- CAL FIRE. 2023b. *Los Angeles County: State Responsibility Area Fire Hazard Severity Zones*. June 15, 2023. https://osfm.fire.ca.gov/media/1hxhknkbu/fhsz_county_sra_11x17_2022_losangeles_2.pdf.

- CAL FIRE. 2023c. *Orange County: State Responsibility Area Fire Hazard Severity Zones*. June 15, 2023. https://osfm.fire.ca.gov/media/ovnbsxhd/fhsz_county_sra_11x17_2022_orange_2.pdf.
- CAL FIRE. 2023d. *Riverside County: State Responsibility Area Fire Hazard Severity Zones*. June 15, 2023. https://osfm.fire.ca.gov/media/4rbmwazl/fhsz_county_sra_11x17_2022_riverside_2.pdf.
- CAL FIRE. 2023e. *San Bernardino County: State Responsibility Area Fire Hazard Severity Zones*. June 15, 2023. https://osfm.fire.ca.gov/media/c4bbj53p/fhsz_county_sra_11x17_2022_sanbernardino_2.pdf.
- CAL FIRE. 2023f. *Ventura County: State Responsibility Area Fire Hazard Severity Zones*. June 15, 2023. https://osfm.fire.ca.gov/media/wjcnk1e3/fhsz_county_sra_11x17_2022_ventura_2.pdf.
- CAL FIRE. 2023g. *State of California: State Responsibility Area Fire Hazard Severity Zones*. June 15, 2023. https://osfm.fire.ca.gov/media/klxe20mh/fhsz_statewide_sra_11x17_2022_2.pdf.
- California Government Code. Title 5, Division 1, Part 1, Chapter 6.8: Very High Fire Hazard Severity Zones [51175–51189].
- California Legislative Analyst’s Office. 2023. *The 2022-23 Budget: Wildfire and Forest Resilience Package*. <https://lao.ca.gov/reports/2022/4495/wildfire-forest-resilience-012622.pdf>.
- California Public Resources Code. Division 4, Part 2, Chapter 1, Article 9: Fire Hazard Severity Zone [4201-4204].
- California Public Utilities Commission (CPUC). 2017. *Press Release December 14, 2017*. CPUC Adopts New Fire-Safety Regulations. <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M201/K352/201352402.pdf>.
- CPUC. 2021. *Utility Wildfire Mitigation Plans (SB 901)*. <https://www.cpuc.ca.gov/industries-and-topics/wildfires/utility-wildfire-mitigation-plans>. Accessed March 6, 2023.
- CPUC. 2022a. *CPUC PSPS Events Rollup (October 2013 through December 2022)*. <https://www.cpuc.ca.gov/consumer-support/pmps/utility-company-pmps-reports-post-event-and-post-season>. Accessed July 27, 2023.
- CPUC. 2022b. *Southern California Edison Company’s (U 338-E) Public Safety Power Shutoff Post-Event Report for November 24, 2022, De-Energization Event*. December 15. <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/safety-and-enforcement-division/reports/pmps-post-event-reports/2022/r1812005-sce-pmps-post-event-report-for-11-24-22-de-energization-event.pdf>.
- CBS Los Angeles. 2018. *Evacuation Orders Lifted for Burbank Neighborhood, Still In Place For La Tuna Canyon*. January 11. <https://losangeles.cbslocal.com/2018/01/11/evacuation-orders-lifted-burbank/>. Accessed March 6, 2023.
- County of Los Angeles, Chief Executive Office – Office of Emergency Management. 2014. 2014 All-Hazard Mitigation Plan. <https://ceo.lacounty.gov/wp-content/uploads/OEM/hazmitgplan.pdf>.
- County of Los Angeles, Department of Regional Planning. 2015. *General Plan 2035, Safety Element*. October 6. http://planning.lacounty.gov/assets/upl/project/gp_final-general-plan-ch12.pdf.
- County of Los Angeles, Department of Regional Planning. 2023b. *Community Wildfire Protection Ordinance*. Available online at: <https://planning.lacounty.gov/wp-content/uploads/2023/02/Draft-Community-Wildfire-Protection-Ordinance-Title-22-HMA-Ordinance.pdf>.
- County of Los Angeles, Department of Regional Planning. 2023a. *Countywide Community Wildfire Protection Plan*. <https://planning.lacounty.gov/long-range-planning/countywide-community-wildfire-protection-plan/>. Accessed May 4, 2023.

- County of Orange & Orange County Fire Authority. 2021. *Local Hazard Mitigation Plan*. December.
<https://www.ocsheriff.gov/sites/ocsd/files/2022-03/2021%20County%20of%20Orange%20and%20Orange%20County%20Fire%20Authority%20Local%20Hazard%20Mitigation%20Plan.pdf>.
- County of Riverside Planning Department. 2021. General Plan, Safety Element. September 28.
<https://planning.rctlma.org/sites/g/files/aldnop416/files/migrated/Portals-14-genplan-2021-elements-Ch06-Safety-092821.pdf>.
- County of San Bernardino. 2014. 2007 General Plan.
<http://www.sbcounty.gov/Uploads/lus/GeneralPlan/FINALGP.pdf>.
- County of San Bernardino. 2019. *Countywide Plan Draft Programmatic Environmental Impact Report (PEIR)*. June.
- FEMA. 1999. *Federal Response Plan, April 1999*.
http://www1.mwcog.org/security/security/otherplans/fed_response_sum.pdf.
- FEMA. 2000. *Disaster Mitigation Act of 2000*. https://www.fema.gov/sites/default/files/2020-11/fema_disaster-mitigation-act-of-2000_10-30-2000.pdf.
- FEMA. 2023. *FEMA Region IX: Arizona, California, Hawaii, Nevada, & the Pacific Islands*. <https://www.fema.gov/fema-region-ix-arizona-california-hawaii-nevada-pacific-islands>. Accessed March 6, 2023.
- Government Publishing Office. 2022. *Title 44: Emergency Management and Assistance*.
<https://www.ecfr.gov/current/title-44>. Accessed March 6, 2023.
- Governor's Office of Emergency Services. 2017. *State of California Emergency Plan*. October 1.
https://www.caloes.ca.gov/wp-content/uploads/Preparedness/Documents/California_State_Emergency_Plan_2017.pdf.
- Governor's Office of Emergency Services. 2019. *California Disaster Assistance Act*. <https://www.caloes.ca.gov/caloes-divisions/recovery/public-assistance/california-disaster-assistance-act>. Accessed March 6, 2023.
- Governor's Office of Planning and Research (OPR). 2018. *2018 CEQA Guidelines Update*.
<https://www.opr.ca.gov/ceqa/guidelines/updates.html>. Accessed March 9, 2023.
- OPR. 2022. *Fire Hazard Planning Technical Advisory*. https://opr.ca.gov/docs/20220817-Fire_Hazard_Planning_TA.pdf.
- OPR. 2023. *Prop 84 Case Study: Los Angeles County Integrated Wildfire Safety Plan*.
<https://resilientca.org/projects/492eb312-bab6-4932-aed8-d6234d79b859/>. Accessed July 27, 2023.
- Health and Safety Code. Division 12: Fires and Fire Protection.
- Imperial County Fire Department & Office of Emergency Services. 2021. *Multi-Jurisdictional Hazard Mitigation Plan (MHMP)*. January. https://firedept.imperialcounty.org/wp-content/uploads/2021/01/Imperial-County-MHMP-2021-Plan-Update-2021_01_11.pdf.
- Imperial County Fire Department & Office of Emergency Services. 2023. *Prevention*.
<https://firedept.imperialcounty.org/>. Accessed March 6, 2023.
- Imperial County Municipal Code. 2010. *8.20.010 – Findings and adoption of the Uniform Fire Code*. Adopted August 17. https://library.municode.com/ca/imperial_county/codes/code_of_ordinances?nodeId=TIT8HESA_CH8.20UNFICOAD_8.20.010FIADUNFICO. Accessed March 6, 2023.
- Imperial County Municipal Code. 2020. *91003.00 – Adoption of the California Building Code*. Adopted December 15. https://library.municode.com/ca/imperial_county/codes/code_of_ordinances?nodeId=TIT9LAUSCO_DIV8SU_CH3CABUCO_91003.00ADCABUCO. Accessed March 6, 2023.

- Imperial County Planning & Development Services. 2015. *Land Use Element of the Imperial County General Plan*. <https://www.icpds.com/planning/land-use-documents/general-plan/land-use-element>. Accessed March 6, 2023.
- Imperial County Planning & Development Services. 1998. *Title 9, Division 8: Subdivision Ordinance*. November 24. <https://www.icpds.com/assets/IS21-0034-TITLE-9-Div-8.pdf>.
- Los Angeles Times. 2019. *DWP power liens hit by tree branch sparked Getty fire that destroyed homes*. <https://www.latimes.com/california/story/2019-10-29/getty-fire-arson-investigation>. Accessed March 6, 2023.
- Los Angeles Times. 2020a. *Sunday was one of the hottest days ever recorded in Southern California. A tally of historic heat*. <https://www.latimes.com/california/story/2020-09-07/sunday-hottest-days-record-southern-california-los-angeles>. Accessed March 6, 2023.
- Los Angeles Times. 2020b. *Bobcat fire grows to 103,000 acres, making it one of L.A. County's largest blazes ever*. <https://www.latimes.com/california/story/2020-09-20/bobcat-fire-update-100-000-acres-la-county>. Accessed March 6, 2023.
- National Aeronautics and Space Administration (NASA). 2018. *NASA Calculated Heavy Rainfall Leading to California Mudslides*. January 11. <https://www.nasa.gov/feature/goddard/2018/nasa-calculated-heavy-rainfall-leading-to-california-mudslides>. Accessed March 6, 2023.
- NASA Earth Observatory. 2020. *California Heatwave Fits a Trend*. <https://earthobservatory.nasa.gov/images/147256/california-heatwave-fits-a-trend>. Accessed September 20, 2023.
- New York Times (NYT). 2019a. *California Says PG&E Power Lines Caused Camp Fire That Killed 85*. May 15. <https://www.nytimes.com/2019/05/15/business/pg-e-fire.html>. Accessed March 6, 2023.
- New York Times (NYT). 2019b. *Forced Out by Deadly Fires, Then Trapped in Traffic*. November 11. <https://www.nytimes.com/2018/11/11/us/california-fire-paradise.html>. Accessed March 6, 2023.
- Office of the State Fire Marshall. 2019. *About the Office of State Fire Marshal*. <https://osfm.fire.ca.gov/about-us/>. Accessed March 6, 2023.
- Office of the State Fire Marshall. 2023. *Fire Hazard Severity Zones Maps*. Available online at: <https://osfm.fire.ca.gov/fire-hazard-severity-zones-maps-2022/>. Accessed March 20, 2023.
- Orange County Planning & Development. 2015. *General Plan: Chapter IX. Safety Element*. <https://ocds.ocpublicworks.com/sites/ocpwoocds/files/import/data/files/40234.pdf>.
- San Bernardino County Land Use Services. 2019. *Countywide Plan Draft PEIR*. June. Southern California Edison. Public Safety Power Shutoffs. <https://www.sce.com/safety/wildfire/psps>. Accessed March 6, 2023.
- Senate Bill No. 99. General plans: safety element: emergency evacuation routes.
- Senate Bill No. 1079. Forest resources: fire prevention grants: advance payments.
- Senate Bill No. 1241. Land use: general plan: safety element: fire hazard impacts.
- Southern California Edison (SCE). 2023. *Public Safety Power Shutoff*. <https://www.sce.com/safety/wildfire/psps>. Accessed March 6, 2023.
- State of California Office of the Attorney General. 2022. *Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act*. <https://oag.ca.gov/system/files/attachments/press-docs/2022.10.10%20-%20Wildfire%20Guidance.pdf>.

- Touma, D., Stevenson S., Swain, D.L., Singh D., Kalashnikov D.A., and Huang, X. 2022. *Climate change increases risk of extreme rainfall following wildfire in the western United States*. Science Advances, Vol 8, Issue 13. <https://www.science.org/doi/10.1126/sciadv.abm0320>. Accessed March 6, 2023.
- U.S. Department of Interior, *Press Release, November 30, 2018*. <https://www.doi.gov/pressreleases/new-analysis-shows-2018-california-wildfires-emitted-much-carbon-dioxide-entire-years>. Accessed September 17, 2019.
- U.S. Departments of the Interior. 2007. *Wildland Fire Management: The National Fire Plan*. https://www.forestsandrangelands.gov/documents/resources/reports/2007/nfp2007_budget_justification.pdf.
- U.S. Environmental Protection Agency (USEPA). 2016. *What Climate Change Means for California*. <https://www.epa.gov/sites/production/files/2016-09/documents/climate-change-ca.pdf>.
- U.S. Fish & Wildlife Services Fire Management. 2009. *Rural Fire Assistance*. <https://www.frames.gov/catalog/81>. Accessed March 6, 2023.
- Ventura County Fire Code. 2013. *Fire Hazard Reduction Program, Appendix W*. <http://staging.vcfd.org/wp-content/uploads/2020/02/VCFD-RSG-Wildfire-Action-Plan-Booklet-2016.pdf>.
- Ventura County Star. 2018. *Highway 101 reopens in Montecito after long closure from deadly mudslide*. January 21. <https://www.vcstar.com/story/news/local/communities/ventura/2018/01/21/highway-101-reopens-montecito-after-long-closure-deadly-mudslides/1052292001/>. Accessed March 6, 2023.
- County of Ventura. 2019. *2040 General Plan: Preliminary Public Review Draft*. https://vc2040.org/images/2040_General_Plan_Files_-_May_2019/PPRD_2040_General_Plan_COMPLETE-compressed.pdf.
- County of Ventura. 2022. *Ventura County Multi-Jurisdictional Hazard Mitigation Plan*. June. https://s29710.pcdn.co/wp-content/uploads/2022/12/2022-06_VenturaHMP_ExecSumm_Final.pdf.
- US Department of the Interior. 2007. *Wildland Fire Management: The National Fire Plan*. https://www.forestsandrangelands.gov/documents/resources/reports/2007/nfp2007_budget_justification.pdf.
- Williams, A. P., Abatzoglou, J. T., Gershunov, A., Guzman-Morales, J., Bishop, D. A., Balch, J. K., & Lettenmaier, D. P. (2019). Observed impacts of anthropogenic climate change on wildfire in California. *Earth's Future* 7, 892–910. <https://doi.org/10.1029/2019EF001210>.

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CHAPTER 4

Alternatives

- 4.1 Introduction
- 4.2 Methodology for Developing Plan Alternatives
- 4.3 Description of Plan
- 4.4 Description of Alternatives
- 4.5 Comparison of Alternatives
- 4.6 Alternatives Considered but Rejected
- 4.7 Environmentally Superior Alternative

4.1 INTRODUCTION

This chapter presents a description of the alternatives to Connect SoCal 2024 (“Project” or “Plan”), evaluates their environmental impacts as compared to those of the Plan, and identifies the environmentally superior alternative as required by the California Environmental Quality Act (CEQA) requirements. The analysis presented below is separated into the following sections: Section 4.3 summarizes key elements of the Plan that are relevant to consideration of alternatives; Section 4.4 provides a discussion of the two selected alternatives; Section 4.5 evaluates how well the alternatives feasibly achieve most of the goals, policies, and basic objectives of the Plan, the extent of their environmental impacts compared to those of the Plan, whether they reduce or eliminate significant environmental impacts caused by the Plan, and at a screening level, whether the alternatives have more or fewer region-wide or statewide environmental benefits.

SCAG’s Regional Council may choose to adopt any portion or all of any alternatives presented in this 2024 PEIR with appropriate findings as required by CEQA. The Regional Council is able to adopt any portion or all of any of the alternatives presented because the impacts of each alternative will be fully disclosed to the public, and the public will have the opportunity to comment on the alternatives and impacts generated by each alternative. Written suggestions on potential Plan alternatives received during the public review and comment period for the Draft 2024 PEIR will be considered when preparing the Final 2024 PEIR and included as an appendix of the Final 2024 PEIR.

4.1.1 CEQA REQUIREMENTS

CEQA Guidelines Section 15126.6 requires an Environmental Impact Report (EIR) to describe a reasonable range of alternatives to a project or to the location of a project that could feasibly avoid or substantially lessen any significant environmental impacts of the project while attaining most of the basic project objectives.

Key provisions of the CEQA Guidelines pertaining to the alternatives analysis are summarized below:

- The discussion of alternatives shall focus on alternatives to the project, including alternative locations that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly (CEQA Guidelines Section 15126.6(b)).
- The EIR shall include a brief discussion of the rationale for selecting alternatives to be discussed and should identify any alternatives that were considered but were rejected as infeasible during the scoping process and briefly explain the reason underlying the lead agency’s decision. Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet project objectives, are infeasible, or do not avoid any significant environmental effects. Among others, the following factors may be used to eliminate alternatives from detailed consideration in an EIR: (1) failure to meet most of the basic project objectives; (2) infeasibility, or (3) inability to avoid significant environmental impacts (CEQA Guidelines Section 15126.6(c)).
- The evaluation of alternatives should include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. A matrix displaying the major characteristics and significant environmental effects of each alternative may be used to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the proposed project (CEQA Guidelines Section 15126.6(d)).

- The No Project Alternative shall be evaluated along with its impacts. The No Project Alternative analysis shall discuss the existing conditions at the time the notice of preparation is published, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. When the project involves an update to an existing land use or regulatory plan, the “no project” alternative will be a continuation of the existing plan, policy, or operation into the future. The projected impacts of the Plan are compared to the impacts from the continuation of the existing plan (CEQA Guidelines Section 15126.6(e)).
- The range of alternatives required in an EIR is governed by a “rule of reason.” Therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the proposed project (CEQA Guidelines Section 15126.6(f)).
- The range of feasible alternatives is selected and discussed in a manner intended to foster meaningful public participation and informed decision making (CEQA Guidelines Section 15126.6(f)). Among the factors that may be taken into account when addressing the feasibility of alternatives (as described in CEQA Guidelines Section 15126.6(f)(1)) are environmental impacts, site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the proponent could reasonably acquire, control, or otherwise have access to the alternative site.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative, and need not consider every conceivable alternative to a project (CEQA Guidelines Section 15126.6(f)(3)).

4.1.2 BACKGROUND

Five public comments received during the CEQA scoping process for the 2024 PEIR were on alternatives to the Plan. Majority of these comments suggested general concepts to be considered in the formulation of potential alternatives, namely, the “local input” that reflects the realization and fulfillment of each local government’s general plan and vision for growth and the “smart growth pattern” that is not just land use patterns currently found in local governments’ general plans. These scoping comments have been considered in this alternatives analysis.

4.1.3 EVALUATION CRITERIA CONSIDERED

As described above, CEQA requires that an EIR describe “a range of reasonable alternatives to the project, or to the location of the project. CEQA indicates that the range of alternatives required in an EIR is governed by a “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. As a result, potential alternatives must be limited to those that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that SCAG determines could feasibly attain most of the basic objectives of the Plan as discussed in Chapter 2, *Project Description*.

LIMITS OF SCAG’S AUTHORITY

While SCAG is required to prepare a Sustainable Communities Strategy (SCS) as part of the Regional Transportation Plan (RTP), SCAG lacks the legal authority to require the decision makers of cities and counties to adopt or amend their respective land use policies, such as general plan, housing element, and zoning code amendments that would implement the land use patterns included in the SCS component of Connect SoCal 2024. Furthermore, SCAG lacks the legal authority to implement land use designations in the SCS component of the Plan

or the alternatives. There are a vast variety of specific land use scenarios at the local level that could achieve Plan objectives to a similar extent. SCAG is aware that local jurisdictions have projects that have been approved and not constructed. As described in Chapter 2, *Project Description*, SCAG worked with each local jurisdiction through the Local Data Exchange (LDX) process to identify local land use plans and visions for growth patterns sourced from local jurisdictions and approved projects that each jurisdiction judges to be reasonably foreseeable. Pursuant to CEQA, the range of alternatives considered in this 2024 PEIR illustrates the different environmental consequences of distinct regional-level alternatives to Connect SoCal 2024.

FINANCIAL CONSTRAINT

Pursuant to the applicable federal regulations in 40 CFR Section 93.108 and 23 CFR Section 450.324(e), Connect SoCal 2024 must demonstrate financial constraint by including “sufficient financial information for demonstrating that projects” in the Plan “can be implemented using committed, available, or reasonably available revenue sources, with reasonable assurance that the federally supported transportation system is being adequately operated and maintained. Fiscal constraint is one of the four tests required for transportation conformity. Connect SoCal 2024 must comply with federal financial constraint requirements. Therefore, its alternatives must also be fiscally constrained.

FEASIBILITY

Feasibility is one of the evaluation criteria for consideration of alternatives to the Plan. CEQA provides that among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of technology and/or infrastructure, whether the alternative can be accomplished within a reasonable period of time, and whether the proponent can reasonably acquire, control or otherwise have access to the alternate site (or the site is already owned by the proponent).

ENVIRONMENTAL BENEFITS

The performance-based planning process used in the development of Connect SoCal 2024 provides the means to objectively assess how well the Plan perform relative to the achievement of the regional goals and meeting state and federal requirements. Alternatives are evaluated on the basis of their environmental benefits. This evaluation is important because Plan implementation is expected to benefit the environment by reducing travel delay, reduced truck delay, increasing transit boarding per capita, and reducing single occupancy mode share. However, since CEQA does not specifically require consideration and discussion of environmental benefits of alternatives as compared to those of the Plan, the evaluation is generally based on a screening-level appraisal of likely environmental benefits, rather than the type of quantitative and/or qualitative analyses used to compare environmental impacts of alternatives to those of the Plan. Therefore, environmental benefits are add-on comparative factors for consideration.

4.2 METHODOLOGY FOR DEVELOPING PLAN ALTERNATIVES

In previous RTP/SCS development cycles, PEIR alternatives had been aligned with planning scenarios which were the alternative land use patterns to those of the previous plans. This cycle, SCAG refined the Connect SoCal 2024 planning process, which starts with data collection and research. Instead of a scenario planning process, SCAG staff developed only one set of regional growth strategies for the Plan’s land use patterns that were based on local plans and reflected regional trends and research. As part of the local plans, transportation projects and programs

were sourced from the County Transportation Commissions (CTCs) while land use and growth were sourced from local jurisdictions based on local data input, integrating new projects and entitlements at the local level, and discussed in one-on-one meetings with the majority of local jurisdictions through a 10-month long LDX process (see Chapter 2, *Project Description*, to learn more about the Plan's LDX process). As a result, Connect SoCal 2024 is SCAG's first RTP/SCS to not modify local data inputs. Given this shift in the RTP/SCS planning for this cycle and in the absence of planning scenarios, the 2024 PEIR has modified its approach to formulating Plan alternative concepts. Therefore, the "local input" alternative raised by the commenters during the public scoping process is not needed because the growth projections for Connect SoCal 2024 are the local inputs.

As discussed in Chapter 2, *Project Description*, of this PEIR, Connect SoCal 2024 is a regional snapshot in time. Based on what is known today, the Plan outlines the region's vision for addressing current challenges and achieving regional goals. Every four years, SCAG has the opportunity to monitor progress, re-adjust vision, assess new challenges, and articulate new regional goals. As such, this Plan is a continuum of progress across each planning cycle by building upon the steps and efforts taken by local agencies.

Since the passage of SB 375 in 2008, SCAG has developed three RTP/SCSs (namely, the 2012 RTP/SCS, the 2016 RTP/SCS, and the 2020 RTP/SCS, also referred to as Connect SoCal 2020). A general observation emerging from these past plans and the current Plan is that the region as a whole is trending toward more sustainable growth. As local agencies incorporate RTP/SCS concepts into their own general/local plans, the previously analyzed No Project alternatives are showing signs of converging with previous regional plans. Implementing agencies have also been aligning their local plans and transportation strategies by promoting sustainable development and increasing use of transit and active transportation opportunities. Additionally, as the RTP/SCS is updated and improves each four-year cycle, it also gets closer to regional policies for more sustainable development patterns. As a result, the land use growth pattern for the CEQA-required No Project alternative (i.e., the pattern expected to occur without Connect SoCal 2024) and the options for intensification might get closer to that of the Plan.

The alternatives approach used for this 2024 PEIR represents a progression of regional land use strategies, such that the No Project Alternative includes the most dispersed land use pattern, and the Intensified Land Use Alternative represents the most compact land use pattern. The land use development pattern for the Plan falls somewhere in-between the No Project Alternative and the Intensified Land Use Alternative. As such, the two selected alternatives provide expected "book-ends" of the range of potential alternatives to present a framework for understanding the greatest potential impacts from alternatives when compared to the Plan.

The evaluations are both quantitative and qualitative as means for evaluating the comparative merits of each alternative to the Plan, and ultimately identifying the environmentally superior alternative.

4.3 DESCRIPTION OF PLAN

4.3.1 PLAN OBJECTIVES

The 2024 PEIR must consider "alternatives ... which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project and evaluate the comparative merits of the alternatives" (CEQA Guidelines Section 15126.6(a)). The vision and goals for Connect SoCal 2024 are rooted in the direction set forth by Connect SoCal 2020, reflecting SCAG's statutory requirements, the emerging trends and persistent challenges facing the region, and feedback from stakeholders and members of the public. SCAG's vision for Southern California in the year 2050 is "A healthy, prosperous, accessible and connected region

for a more resilient and equitable future.” To achieve this vision, the Plan has established four goals and 10 subgoals as follows. These goals and subgoals serve as “the basic objectives of the project” for CEQA purposes.

Mobility: *Build and maintain a robust transportation network*

- Support investments that are well-maintained and operated, coordinated, resilient and result in improved safety, improved air quality and minimized greenhouse gas emissions
- Ensure that reliable, accessible, affordable and appealing travel options are readily available, while striving to enhance equity in the offerings in high-need communities
- Support planning for people of all ages, abilities and backgrounds

Communities: *Develop, connect and sustain communities that are livable and thriving*

- Create human-centered communities in urban, suburban and rural settings to increase mobility options and reduce travel distances
- Produce and preserve diverse housing types in an effort to improve affordability, accessibility and opportunities for all households

Environment: *Create a healthy region for the people of today and tomorrow*

- Develop communities that are resilient and can mitigate, adapt to and respond to chronic and acute stresses and disruptions, such as climate change
- Integrate the region’s development pattern and transportation network to improve air quality, reduce greenhouse gas emissions and enable more sustainable use of energy and water
- Conserve the region’s resources

Economy: *Support a sustainable, efficient and productive regional economic environment that provides opportunities for all residents*

- Improve access to jobs and educational resources
- Advance a resilient and efficient goods movement system that supports the economic vitality of the region, attainment of clean air and quality of life for our communities

4.3.2 PLAN ELEMENTS

As described in Chapter 2, *Project Description*, Connect SoCal 2024 is a long-range (minimum of 20 years) plan for the region that links air quality, land use, and transportation needs. Key components include a forecasted regional development pattern based on expert projection, existing planning documents, and regional policies and review by local jurisdiction through the year 2050 as well as a transportation network including a list of transportation projects and investments from CTCs on their planned near-term and long-term projects. The Plan also identifies Regional Planning Polices as guidance for integrating land use and transportation planning to realize the vision of Connect SoCal 2024, Implementation Strategies that identify areas where SCAG will lead, partner, or support other responsible parties over the Plan horizon, and Regional Strategic Investments to supplement and address the gap between the local plans and inputs received from CTCs and jurisdictions and regional performance targets and goals. To provide context for the description of alternatives, land use and transportation elements of the Plan were used as variables to formulate alternatives and compare their performance and environmental impacts to those of the Plan. The Plan land use and transportation elements for the two alternatives vary in the following ways:

LAND USE ELEMENTS

- The amount and scale of development in Priority Development Areas (PDAs), where residents have more access to multiple modes of transportation or trip origins and destinations are closer together, thereby allowing for shorter trips.
- The amount and scale of compact or infill development, which is measured in terms of housing product mix (the mix of high- and low-density housing units) and amount and scale of development occurring in existing developed versus undeveloped areas. Compact development has been shown to be more effectively served by transit, to support potentially higher rates of walking and biking, and to generate less vehicle travel.
- The amount and scale of mixed-use development, which supports shorter vehicle trips, higher rates of non-motorized travel, and higher efficiencies and savings in electricity and water consumptions.
- The amount and scale of development in Green Region Resource Areas (GRRAs), where residents are generally far from jobs and destinations and have increased risk of climate hazards (i.e., flood areas, coastal inundation areas, wildfire), or encroach on sensitive habitats/species, farmlands, open space or tribal lands.
- The amount of natural and agricultural lands preservation that supports protection, restoration, and conservation of natural habitats and wildlife corridors, protects the regional and local food supply and agricultural economy, creates potential carbon sinks, and aligns with climate adaptation and resilience goals.
- The Regional Forecasted Development Pattern (RFDP) integrated with transportation network to the future (2050) horizon year details where jobs and housing will be anticipated to be located in the future and demonstrates where the region can sustainably accommodate growth and needed housing. The RFDP helps understand and analyze the travel behavior of people in the region, when paired with transportation investments and policies, as well as understand where local jurisdictions anticipate new jobs and housing but does not constrain local decision making.
- Connect SoCal 2024 projects regional growth of 2,055,000 new people, 1,272,000 new jobs, and 1,605,000 households between 2019 and 2050. Projections are reported at the regional and county levels. Total values will not vary between the Plan and alternatives.

TRANSPORTATION ELEMENTS

- Transportation projects and investments included in Connect SoCal 2024 are sourced primarily from project lists submitted from CTCs and supplemented by a set of regional strategic investments. The Connect SoCal 2024 "Build" transportation network scenario is generally defined as all Federal Transportation Improvement Program (FTIP) projects, including the 2023 FTIP No Build, and the future transportation system that will result from full implementation of Connect SoCal 2024.
- The location, frequency, and type of transit service would vary based on the extent of transit-supportive land uses in corridors. Higher density, mixed-use corridors provide greater opportunities for higher capacity transit, such as light rail.
- Work from Home (WfH) is the percentage of workers in a work arrangement that do not travel to their workplace, including telecommuting, home office workers, or other strategies. It is noted that the rebound effect, which the increase in travel from WfH workers for non-work purposes, is included SCAG's activities-based travel demand model for the Plan. While a WfH worker saves commuting trips to and from workplace, SCAG's model includes the additional non-work travel or business (work-related) travel by the worker.

- Other transportation strategies such as transportation demand management (TDM), system pricing (e.g., cordon pricing, parking costs), complete streets, and transit fares incentives, and technology integration as tools for managing congestion and increasing transit ridership.

4.4 DESCRIPTION OF ALTERNATIVES

This section provides a description of the two selected “book-end” alternatives to the Plan including key land use and transportation elements as points of comparison for the evaluation of regional environmental impacts and benefits of each alternative.

4.4.1 ALTERNATIVE 1: NO PROJECT

Alternative 1 is the No Project Alternative. The No Project Alternative is required by CEQA Guidelines Section 15126.6(e)(2) and assumes what would occur if the Plan would not be approved. The No Project Alternative allows decision makers to compare the impacts of approving the Plan with the impacts of not approving the Plan. The No Project Alternative evaluates “what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services” (CEQA Guidelines Section 15126.6(e)(2)). For purposes of this document, the No Project Alternative means continued implementation of goals and policies of the adopted 2020 RTP/SCS, as amended (CEQA Guidelines Section 15126.6(e)(3)(A)).

As described in Section 4.2, *Methodology*, this alternative is analyzed quantitatively. A summary of the land use and transportation elements for Alternative 1 is provided below.

LAND USE ELEMENTS

- Alternative 1 assumes continuation of goals and policies of the adopted 2020 RTP/SCS, as amended, with no new sets of regional planning policies or implementation strategies from Connect SoCal 2024. As such, the amount and scale of development in PDAs where residents have more access to multiple modes of transportation or trip origins and destinations are closer together would decrease as compared to those under the Plan implementation.
- The housing mix under Alternative 1 would have more single-family residences on small and large lots as compared to the Plan, which supports longer vehicle trips and lower rates of non-motorized travel. The No Project Alternative would include the lower proportion of multi-family compared to single-family homes.
- The amount and scale of development within GRRAs is assumed to increase compared to the Plan. The total and rate of land conversion of greenfield land consumption would be greater than under the Plan due to the greater land needed for development of single-family residences and more dispersed growth pattern overall with more development occurring away from transit and employment centers. As a result, the RFDP where future jobs and housing would be located would be more dispersed and sprawling under Alternative 1 than under the Plan.
- Regional growth projections/land use pattern to the future (2050) horizon year for Alternative 1 are based on the Trend baseline socioeconomic data (SED) which reflects historical growth (based on last three decennial Censuses and trend projections) to forecast future growth.

- Alternative 1 assumes the same total amount of population, household, and employment at the regional and county levels as the Plan.

TRANSPORTATION ELEMENTS

- The “No-Build” transportation network under Alternative 1 would include all existing regionally significant highway and transit projects, all ongoing TDM or Transportation System Management (TSM) activities, and all projects that are undergoing right-of-way acquisition, are currently under construction, have completed the NEPA process, or are in the first year of the previously conforming FTIP (2023 FTIP) (FY2022/2023).
- “Exempt projects” include certain highway and transit projects of the types listed in Table 2 of 40 CFR Section 93.126. These projects are exempt from the requirement to determine conformity and would be included in the No Project Alternative since they may proceed toward implementation even in the absence of a conforming transportation plan such as Connect SoCal 2024.¹
- Due to a more dispersed growth pattern, employees and residents are also assumed to make more trips and trips would be longer.
- The location, frequency, and type of transit service under Alternative 1 would provide less opportunities for higher capacity transit as compared to the Plan.
- The percentage of WfH workers is assumed to be lower under Alternative 1; however, there could be fewer travel by work-at-home workers for non-work purposes; thereby lessening the rebound effect than under the Plan.
- Other transportation strategies such as TDM, system pricing (e.g., cordon pricing, parking costs), complete streets, and transit fares incentives, and technology integration as tools for managing congestion and increasing transit ridership would also decrease.

4.4.2 ALTERNATIVE 2: INTENSIFIED LAND USE

Alternative 2 is the Intensified Land Use Alternative.² It is based on more aggressive, faster implementation, and a greater scale of intensified land use development patterns than the Plan, and substantially beyond and different from existing land use patterns. The land use patterns in this alternative would build on land use strategies described in the Plan by increasing growth in and around PDAs and beyond to maximize transit opportunities. The focus of this alternative is on increased densities adjacent to existing employment and transportation infrastructure, which would lead to fewer and shorter trips and therefore a greater reduction in vehicle miles traveled (VMT) as compared to the Plan. Specifically, the growth pattern associated with this alternative includes a greater degree of progressive job-housing distribution in urban areas and suburban town centers, transit-oriented developments (TODs), transit priority areas (TPAs), livable corridors, and neighborhood mobility areas (NMAs). It optimizes for PDAs by placing additional emphasis on infill development and transit. As described in Section 4.2, *Methodology*, this alternative is analyzed qualitatively. A summary of the land use and transportation elements for Alternative 2 is provided below.

¹ United States Environmental Protection Agency. (2012). Transportation Conformity Regulations.

² In previous cycles, the Intensified Land Use PEIR Alternative has been aligned with data generated from Plan’s “Unconstrained” Scenario. This cycle, Connect SoCal 2024 did not engage in the scenario planning process to identify alternative land use patterns to the Plan and instead incorporated regional growth strategies in datasets for review by local jurisdictions directly into the Plan (see Chapter 2, *Project Description*, to learn more about the Plan’s LDX process). Given this shift in approach, SCAG took a qualitative analytical approach the Intensified Land Use Alternative in this PEIR.

LAND USE ELEMENTS

- Because Alternative 2 assumes more aggressive land use development patterns than the Plan, the amount and scale of development in PDAs where residents have more access to multiple modes of transportation or trip origins and destinations are closer together would increase compared to the Plan.
- The housing mix under Alternative 2 would include fewer single-family but more mixed-use development and the highest proportion of multi-family residences within urban cores than under the Plan.
- The amount and scale of development within GRRAs is assumed to decrease while the amount of natural and agricultural lands preservation would increase under Alternative 2 than under the Plan. As such, the total and rate of land conversion of greenfield land, natural land, and agricultural land in acres would be less than under the Plan due to the increased concentration of development adjacent to transit and existing and future employment centers, and the development would be more suitable for walking, biking, and other modes of active transportation. As a result, the RFDP where future jobs and housing would be located would be more compact under Alternative 2 than under the Plan.
- Alternative 2 is assumed to have the same regional and county totals of population, household, and employment data as the Plan.

TRANSPORTATION ELEMENTS

- Alternative 2 is assumed to have the same transportation network, investments, and programs as the Plan, including implementation of the approximately 2,000 short-term and long-term transportation projects included in the Plan.
- Due to a more concentrated growth pattern, employees and residents are also assumed to make less and shorter motorized trips as compared to the Plan.
- Alternative 2 is assumed to have higher percentage of WFH workers; however, there could be greater rebound effect than that under the Plan as there would be more work-at-home workers and more travel for no-work purposes.

4.5 COMPARISON OF ALTERNATIVES

4.5.1 MEETING PROJECT OBJECTIVES

The effectiveness of each of the alternatives to achieve the basic objectives of the Plan has been evaluated in relation to the statement of the Plan's goals and subgoals described above. Although the No Project Alternative is not capable of meeting most of the goals and subgoals of the Project, it has been analyzed, as required by CEQA.

The Intensified Land Use Alternative is capable of meeting most of the goals and subgoals of the Plan. However, because it would place a large portion of growth in existing communities it may conflict with local plans or place

a burden on some community facilities such as parks and other services to a greater extent than the Plan. Therefore, it is less effective in meeting the following goals and subgoals:

2. **Communities: *Develop, connect, and sustain communities that are livable and thriving.***

- a. *Create human-centered communities in urban, suburban, and rural settings to increase mobility options and reduce travel distances.* The Intensified Land Use Alternative would not achieve this subgoal to the same extent as the Plan due to its focus on compact development beyond what is currently contemplated under the Plan. The emphasis on development in urban communities may result in overuse of parks and other services (police, fire, schools, library) which has the potential to result in quality of life impacts in urban areas. The resulting deficiencies in park facilities, fire and police protection services, and schools and libraries in areas that are currently underserved or would become underserved under the Intensified Land Use Alternative could create or exacerbate inequities in livability and opportunities for quality recreation, education, public safety, and community facilities in affected areas. Furthermore, a focus on development in existing urbanized areas may limit the potential growth and development of communities in rural and suburban settings with more limited transportation options and public services and facilities.

3. **Environment: *Create a healthy region for the people of today and tomorrow.***

- a. *Develop communities that are resilient and can mitigate, adapt to and respond to chronic and acute stresses and disruptions, such as climate change.* The Intensified Land Use Alternative would not achieve this subgoal to the same extent as the Plan also due to its focus on compact development beyond what is currently contemplated under the Plan. In areas where public services and facilities become overburdened and insufficient to meet growing demands, the surrounding community may be less resilient and unable to adequately respond to acute disruptions like natural disasters or other emergency conditions. Similarly, given the higher density in urban centers under this alternative, the increased concentration of people and vehicles in a denser configuration could result in localized effects such as higher traffic congestion and potential exposure higher numbers of people to risks associated with earthquakes, floods, urban fires, or other such events. In addition, the population density in urban areas would also place a higher burden on open spaces, parks, and recreational facilities that offer residents opportunities for outdoor activities and physical activity, and as such this alternative could reduce the availability of these opportunities for healthy lifestyle choices.

As further described below, consideration of alternatives requires careful examination of the multiple facets of each alternative. For example, while urban development may preserve farmland or other natural resources, it could place a burden on urban parks, schools, police and fire services, and aging infrastructure.

4.5.2 ENVIRONMENTAL IMPACTS OF ALTERNATIVES

Consistent with the requirements of CEQA Guidelines Section 15126.6(d), this section of the analysis provides information for the alternatives, including the No Project Alternative, to allow meaningful evaluation, analysis, and comparison with the Project, inclusive of direct, indirect, and cumulative impacts. The evaluation demonstrates if the alternative can avoid or reduce the significant and unavoidable effects of the Project.

ALTERNATIVE 1: NO PROJECT ALTERNATIVE

AESTHETICS

Impacts to scenic vistas from transportation projects in Alternative 1, the No Project Alternative, would be less than the Plan because the No Project Alternative would result in fewer transportation projects overall and therefore fewer opportunities to obstruct a scenic vista. However, impacts from land use development under the No Project Alternative could be greater than the Plan as the overall land use pattern would be more dispersed, resulting in more opportunities to obstruct a scenic vista. Therefore, overall, impacts to scenic vistas would continue to be significant and similar to the Plan.

Similarly, the No Project Alternative would have less transportation projects and would result in fewer opportunities to create visually contrasting elements that could adversely affect existing scenic resources. The No Project Alternative would not include any transportation projects that could affect State Scenic Highways or vista points. However, because of its more dispersed land use pattern Alternative 1 could result in greater opportunities for visual contrasts from land use development that could degrade the visual character or quality of views, including impacts to views of green space and other scenic resources. Therefore, overall impacts to views would continue to be significant and similar to those of the Plan.

The Plan includes strategies to focus growth in PDAs and away from GRRAs, which would help reduce the consumption and disturbance of greenfield and reduce resultant impacts on aesthetics and views. Under the No Project Alternative, greater areas of greenfield would be impacted resulting in greater impacts to visual character (although individual jurisdictions may still seek to reduce the urban footprint through their general plans). The No Project Alternative's impacts would result in the consumption of more greenfield land potentially resulting in loss of scenic resources and changes in visual character. Impacts to visual character in urbanized areas would be similar to the Plan because existing zoning and other regulations governing visual quality are mandatory and would be equally enforced under this alternative. Impacts would remain significant.

Regarding light and glare, with fewer transportation projects proposed, the No Project Alternative would require less transportation-related lighting to be installed and would introduce fewer vehicles that could create daytime glare effects in currently undeveloped areas in the region, which would reduce overall transportation-related light and glare impacts; however, the greater amount of land consumed under the No Project Alternative could introduce more lighting into undeveloped areas associated with land use development resulting in potential impacts greater than the Plan. Overall, light and glare impacts would be similar to the Plan and would remain significant.

AGRICULTURE AND FORESTRY RESOURCES

Conversion of agricultural land (including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance), timberland, and timberland zoned Timberland Production to non-agricultural, or non-timber uses under the No Project Alternative would be similar to Connect SoCal 2024 because although the projected land use pattern of the No Project Alternative would be more dispersed; overall, it would convert fewer acres of agricultural land to urban use. This is because the Plan anticipates using more agricultural land than the trend to accommodate growth, consistent with jurisdictional feedback on locally anticipated growth (see the Connect SoCal 2024 Land Use and Communities Technical Report). However, the planned transportation improvements of this alternative would include 4,766 fewer lane miles of new or expanded roadway and highways relative to the Plan. Impacts regarding conversion of agricultural land to non-agricultural uses would be similar to those of the Plan

and would be significant. Due to the lack of timberland production activities in the SCAG region, however, no impacts associated with conversion of timberland and timberland zoned Timberland Production would occur under this alternative, as is the case under the Plan.

The No Project Alternative would not include transportation projects with the potential to result in the loss or conversion of forest lands; however, given the expanded footprint of land use development under the No Project Alternative, more projects could be developed within GRRAs (including forest lands) compared to the Plan. Impacts under this alternative, therefore, would be similar to those of the Plan, and impacts related to forest land would remain significant.

The potential for conflicts with zoning, land use designations, Williamson Act contracts, and/or other applicable regulations that protect agricultural and forestry resources and timberlands would also be less because fewer additional agricultural lands would be converted to nonagricultural uses than under the Plan. However, the potential for other changes that could result in the conversion of agricultural land to developed land uses (e.g., encroachment into agricultural production areas, loss or reduction of water supply, changes to hydrology and drainage patterns, climate change, inadequate production value, urban development pressure, etc.) would be greater due to increases in urbanization in rural areas under this alternative as compared to the Plan.

AIR QUALITY

The Plan would meet federal transportation conformity requirements and would be consistent with State Implementation Plans and therefore would have a less than significant impact with respect to consistency with air quality management plans at the regional level. Individual projects have the potential to exceed project-level significance thresholds and, as such, there exists the potential for project-level inconsistencies with local air quality management plans. Therefore, the impact is considered significant at the project/local level. It is not clear that Alternative 1 would conform to the local air quality management plans because the No Project Alternative would not include updated strategies, including new transportation investments beyond those that are currently programmed in the Plan to meet federal transportation conformity requirements, and therefore, the No Project Alternative would potentially conflict with or obstruct implementation of air quality management plans at the regional level.

Under the No Project Alternative, no new transportation investments would be made beyond those that are currently programmed. As a result, fewer transportation projects would be built than under the Plan resulting in less construction emissions compared to the Plan. However, it is still anticipated that construction emissions in the region could still exceed the significance thresholds established in the CEQA Guidelines (these thresholds were developed for use in analyzing individual development projects) and applied by the local air districts (SCAQMD, VCAPCD, MDAQMD, and AVPCD), which are typically based on daily and/or annual emissions. Individual construction projects and total regional construction on a given day or in a given year could be similar under the Plan and No Project Alternative; therefore, construction emissions in the region under the No Project Alternative could still result in a significant impact, which would be short-term for each individual project, but overall, the region would experience ongoing air quality impacts.

With respect to operations, under the No Project Alternative, investments in VMT reduction projects and infill and compact land use strategies would not occur to the same degree as the Plan. Therefore, the No Project Alternative is anticipated to have higher levels of VMT than the Plan (see **Table 4-6, VMT 2050 by County**, below) resulting in a higher level of operational emissions compared to the Plan for particulate matter and ozone precursors, pollutants for which the area is designated as non-attainment.

In addition, the No Project Alternative is anticipated to have higher levels of vehicle delay than the Plan (see **Table 4-10, Total Daily Vehicle Hours of Delay (2050)**, below, resulting in greater emissions from vehicle idling. As a result, the No Project Alternative could have a significant cumulative impact.

With respect to cancer risk and impact to public health, the No Project Alternative would result in greater emissions as compared to the Plan due to the increase in VMT given that under the No Project Alternative, investments in VMT reduction projects and infill and compact land use strategies would not occur to the same degree as the Plan. As shown in Table 4-6, total VMT would be less under the Plan than the No Project, with the exception of Imperial County which would be similar. Therefore, emissions will be less under the Plan as compared to the existing conditions and to the No Project.

As demonstrated in **Table 4-1, Summary Maximum Exposed Individual Residential 30-Year Exposure Cancer Risk**, seven of the transportation segments under the No Project scenario would have lower cancer risk than under the Plan. This is likely due to changes in the land use growth pattern and the ratio of light/medium vehicle versus heavy-duty truck travel expected under the Plan versus a No Plan. For example, Segment 1 is in El Centro on the I-8; under the Plan the segment would experience a decrease in VMT from light- and medium-duty cars of approximately 1,400 as compared to the No Project; however, heavy-duty truck traffic is expected to increase by over 200 daily trips under the Plan as compared to the No Project scenario. Since the majority of DPM emissions and the associated health risk results from heavy-duty vehicles, the health risk would be greater in this segment under the Plan. The health risk under the Plan is anticipated to be less in most segments as compared to the No Project scenario. The total health risk summed across the analyzed segments under the Plan (1,553 in 1 million) would be less than the No Project (1,575 in 1 million). Additionally, the total health risk (1,553 in 1 million) under the Plan would be less than under existing conditions (4,532 in 1 million). Similar to the Plan, future emissions under the No Project Alternative would be substantially less than existing conditions due to the dramatic reductions in emissions that are expected to result from federal and state regulations that require reduced tail pipe emissions from on-road heavy-duty diesel trucks. Health risk associated with construction activities under the No Project Alternative would be similar to the Plan and potentially significant adjacent to extended intense construction activities. While the No Project Alternative would not include new transportation investments beyond those that are currently programmed, individual construction projects and total regional construction on a given day or in a given year could be similar under the Plan and No Project Alternative, and therefore similar to the Plan, construction emissions and related construction health risk impacts in the region under the No Project Alternative could still result in a significant impact.

Health risk associated with construction activities under the No Project Alternative would be similar to the Plan and potentially significant adjacent to extended intense construction activities. While the No Project Alternative would not include new transportation investments beyond those that are currently programmed, individual construction projects and total regional construction on a given day or in a given year could be similar under the Plan and No Project Alternative, and therefore similar to the Plan, construction emissions and related construction health risk impacts in the region under the No Project Alternative could still result in a significant impact.

TABLE 4-1 Summary Maximum Exposed Individual Residential 30-Year Exposure Cancer Risk

SEGMENT NO.	TRANSPORTATION SEGMENT	COUNTY/REGION	2050 NO PLAN	2050 PLAN
1	IMP I-8	Imperial/El Centro	94.1	94.9
2	IMP SR-78	Imperial/Westmoreland	59.7	60.1
3	LA I-110	Los Angeles/Carson	114	118
4	LA I-710	Los Angeles/Compton	166	135
5	LA SR-60 DB	Los Angeles/Diamond Bar	143	146
6	LA SR-60 SEM	Los Angeles/South El Monte	88.4	86.2
7	ORA I-5	Orange/Orange	87.2	97.0
8	ORA I-405	Orange/Seal Beach	176	169
9	RIV I-10	Riverside/Banning	38.0	37.6
10	RIV I-15	Riverside/Temecula	38.9	38.9
11	RIV SR-91	Riverside/Corona	113	116
12	SB I-15 ONT	San Bernardino/Ontario	58.4	65.6
13	SB I-15 VIC	San Bernardino/Victorville	42.5	40.7
14	SB SR-60	San Bernardino/Ontario	185	182
15	VEN US-101 SB	Ventura/San Buenaventura	59.3	58.3
16	VEN US-101 TO	Ventura/Thousand Oaks	111	108

Source: Health Risk Assessment (Appendix B-2).

Table Note: Cancer Risk CEQA Significance Threshold is an increase of 10 per 1 million from the Plan.

A summary of NO₂ concentrations for existing and future conditions under the Plan and the No Project Alternative year 2050 are provided in **Table 4-2, Maximum 1-Hour NO₂ Concentrations (ppb) at Near-Freeway Sensitive Receptors**, and **Table 4-3, Maximum Annual NO₂ Concentrations (ppb) at Near-Freeway Sensitive Receptors**. As shown therein, NO₂ concentrations under the No Project Alternative would generally be higher than under the Plan. However, due to differences in in the land use growth pattern and VMT distribution and vehicle fleet (light and medium duty vehicles and heavy-duty truck traffic) in some cases, the NO₂ concentration for some segments under the No Project Alternative would be slightly lower than under the Plan. As under the Plan, the modeling analysis shows that the NO₂ concentrations under the No Plan Alternative would decrease substantially in the future as compared to the existing conditions and would not exceed the NAAQS 1-hour NO₂ 100 ppb standard and annual NO₂ 53 ppb standard. Therefore, as with the Plan, the No Plan Alternative would be protective of human health and public welfare as established by the Primary and Secondary NO₂ NAAQS.

TABLE 4-2 Maximum 1-Hour NO₂ Concentrations (ppb) at Near-Freeway Sensitive Receptors

SEGMENT NO.	TRANSPORTATION SEGMENT	COUNTY/REGION	2050 NO PLAN	2050 PLAN
1	IMP I-8	Imperial/El Centro	61.4	63.9
2	IMP SR-78	Imperial/Westmoreland	61.5	61.5
3	LA I-110	Los Angeles/Carson	88.9	88.3
4	LA I-710	Los Angeles/Compton	90.1	89.6
5	LA SR-60 DB	Los Angeles/Diamond Bar	93.6	93.8
6	LA SR-60 SEM	Los Angeles/South El Monte	86.5	86.3
7	ORA I-5	Orange/Orange	60.2	60.7
8	ORA I-405	Orange/Seal Beach	69.2	68.6
9	RIV I-10	Riverside/Banning	58.5	58.5
10	RIV I-15	Riverside/Temecula	61.9	61.9
11	RIV SR-91	Riverside/Corona	69.4	69.7
12	SB I-15 ONT	San Bernardino/Ontario	80.6	81.2
13	SB I-15 VIC	San Bernardino/Victorville	81.0	80.6
14	SB SR-60	San Bernardino/Ontario	87.6	87.8
15	VEN US-101 SB	Ventura/San Buenaventura	39.5	39.3
16	VEN US-101 TO	Ventura/Thousand Oaks	39.4	39.2
NAAQS (ppb)		—	100	100
Does any segment exceed?		—	No	No

Source: Health Risk Assessment (Appendix B-2).

Table Note: The NAAQS for the 1-hour NO₂ standard is 100 ppb. The results presented are in units of ppb and compared to the NAAQS for significance determination.

TABLE 4-3 Maximum Annual NO₂ Concentrations (ppb) at Near-Freeway Sensitive Receptors

SEGMENT NO.	TRANSPORTATION SEGMENT	COUNTY/REGION	2050 NO PLAN	2050 PLAN
1	IMP I-8	Imperial/El Centro	12.3	13.1
2	IMP SR-78	Imperial/Westmoreland	11.3	11.3
3	LA I-110	Los Angeles/Carson	26.8	26.9
4	LA I-710	Los Angeles/Compton	27.6	27.4
5	LA SR-60 DB	Los Angeles/Diamond Bar	27.7	27.8
6	LA SR-60 SEM	Los Angeles/South El Monte	26.4	26.3
7	ORA I-5	Orange/Orange	21.7	21.9
8	ORA I-405	Orange/Seal Beach	24.0	23.8
9	RIV I-10	Riverside/Banning	15.6	15.6
10	RIV I-15	Riverside/Temecula	18.5	18.5
11	RIV SR-91	Riverside/Corona	18.5	18.6
12	SB I-15 ONT	San Bernardino/Ontario	31.1	31.3
13	SB I-15 VIC	San Bernardino/Victorville	30.6	30.5
14	SB SR-60	San Bernardino/Ontario	33.4	33.5
15	VEN US-101 SB	Ventura/San Buenaventura	8.6	8.6
16	VEN US-101 TO	Ventura/Thousand Oaks	8.4	8.4
NAAQS (ppb)		—	53	53
Does any segment exceed?		—	No	No

Source: Health Risk Assessment (Appendix B-2).

Table Note: The NAAQS for the annual NO₂ standard is 53 ppb. The results presented are in units of ppb and compared to the NAAQS for significance determination.

A summary of existing and future conditions under the Plan and the No Project Alternative year 2050 Nitrogen Deposition is provided **Table 4-4, Maximum Nitrogen Deposition at Near-Freeway Sensitive Receptors**. As shown therein, nitrogen deposition for the No Project Alternative would generally result in higher nitrogen deposition than under the Plan. Due to differences in in the land use growth pattern and VMT distribution and vehicle fleet (light and medium duty vehicles and heavy-duty truck traffic) in some cases, for some segments the No Project Alternative would have slightly lower nitrogen deposition than under the Plan, though overall nitrogen deposition would be greater. However, the modeling analysis shows that the nitrogen deposition for all segments under the No Plan would be similar to the Plan and would decrease substantially in the future as compared to the existing conditions. As there is no national or state standard for comparison, nitrogen deposition results are provided primarily for informational purposes and the No Plan Alternative nitrogen deposition trends directly correlate to VMT as with nitrogen concentrations.

TABLE 4-4 Maximum Annual Nitrogen Deposition at Near-Freeway Sensitive Receptors

SEGMENT NO.	TRANSPORTATION SEGMENT	COUNTY/REGION	2050 NO PLAN	2050 PLAN
1	IMP I-8	Imperial/El Centro	0.149	0.150
2	IMP SR-78	Imperial/Westmoreland	0.104	0.104
3	LA I-110	Los Angeles/Carson	0.298	0.305
4	LA I-710	Los Angeles/Compton	0.363	0.346
5	LA SR-60 DB	Los Angeles/Diamond Bar	0.434	0.434
6	LA SR-60 SEM	Los Angeles/South El Monte	0.271	0.258
7	ORA I-5	Orange/Orange	0.254	0.269
8	ORA I-405	Orange/Seal Beach	0.499	0.476
9	RIV I-10	Riverside/Banning	0.090	0.090
10	RIV I-15	Riverside/Temecula	0.375	0.373
11	RIV SR-91	Riverside/Corona	0.466	0.475
12	SB I-15 ONT	San Bernardino/Ontario	0.138	0.146
13	SB I-15 VIC	San Bernardino/Victorville	0.083	0.076
14	SB SR-60	San Bernardino/Ontario	0.386	0.371
15	VEN US-101 SB	Ventura/San Buenaventura	0.244	0.228
16	VEN US-101 TO	Ventura/Thousand Oaks	0.185	0.173

Table Note: Units are in grams per meter-squared per year.

Objectionable odors under the No Project Alternative would be similar to the Plan. While under normal circumstances, the No Project Alternative would not be expected to result in substantial odor emissions or affect a substantial number of people when compared to existing conditions, given the size of and complexity of air quality conditions in the region, variability in application and enforcement of air quality rules and regulations, and potential for unforeseen circumstances to occur through the 2050 Plan horizon, it is possible that construction activities and operation of transportation projects and urban land use projects consistent with land use strategies currently in place could generate emissions (such as those leading to odors) adversely affecting a substantial number of people similar to the Plan. While the No Project Alternative would not include new transportation investments beyond those that are currently programmed, individual construction projects and total regional construction on a given day or year could be similar under the Plan and No Project Alternative, which would result in similar levels of construction-related emissions (such as those leading to odors) as the Plan.

BIOLOGICAL RESOURCES

The Plan includes strategies that focus new growth along existing transportation corridors and in urbanized areas, rather than vacant, open space/recreation, and agricultural lands such as GRRAs. While it is likely that some growth would still occur in GRRAs under the Plan, without Plan land use strategies, impacts to biological resources may be more widespread. Under the No Project Alternative there would be more standard (single-family) suburban residential development and a corresponding increase in the amount of greenfield land developed. However, the No Project Alternative would not include the implementation of planned transportation projects with the potential to affect biological resources. Impacts to biological resources are directly linked to the amount of native habitat

conversion in non-urban areas. As such, implementation of the Plan may lead to increased degraded habitat in some areas while other areas may see improved habitat compared to the No Project Alternative (see Connect SoCal 2024 Land Use and Communities Technical Report). Therefore, impacts to sensitive species and their habitats, riparian habitat and sensitive natural communities, and wetlands under Alternative 1 would be similar than under the Plan and would remain significant.

The increased development footprint would also increase the potential for reductions in habitat connectivity and wildlife movement, with the No Project Alternative resulting in the urbanization of more essential connectivity natural areas than the Plan. However, the No Project Alternative would not include the implementation of planned transportation projects and thus would not create additional barriers to wildlife movement associated with linear projects like new streets, highways, and rail facilities that would occur under the Plan. As such, overall, impacts to wildlife movement would be similar to those of the Plan but would remain significant.

With regard to tree preservation ordinances and other local policies or ordinances protecting biological resources, the No Project Alternative would not include construction of planned transportation projects and thus would have a reduced potential compared to the Plan to result in tree removals or physical impacts to biological resources associated with the construction of such facilities. However, because the land use development pattern under the No Project Alternative would be more widespread and fragmented compared to that under the Plan, it would result in an increased potential for impacts to trees and other biological resources and associated conflicts with policies or ordinances intended to protect them. As such, impacts would be similar to the Plan and would be significant.

Similarly, with regard to Habitat Conservation Plans and Natural Community Conservation Plans, the No Project Alternatives would result in the urbanization of more SCAG Natural Lands Conservation Areas and greenfield land than would occur under the Plan. Nonetheless, this alternative would not result in implementation of planned linear transportation projects that could traverse areas within the limits of such plans, thereby increasing the potential for conflicts to occur. As such, impacts would be similar to the Plan under the No Project Alternative.

CULTURAL RESOURCES

Impacts to historical resources could be reduced under Alternative 1 as there would be less pressure to redevelop existing sites in urban areas. Impacts to archeological resources and human remains under the No Project Alternative would be greater than under Connect SoCal 2024 because this alternative's projected land use pattern would be less compact and therefore would consume more greenfield land compared to the Plan. The additional land disturbance, such as grading and excavation, resulting from the projected land use pattern of this alternative would result in greater likelihood of encountering unknown surface or subsurface archaeological resources, or human remains; it would also result in greater impacts to the character of settings that contribute to the significance of historic built environments. The No Project Alternative would result in fewer lane miles constructed which would reduce transportation related impacts compared to the Plan, which would reduce the amount of soil disturbance associated with construction and expansion of highways and other planned roadway projects and therefore result in lower likelihood of encountering unknown surface or subsurface archaeological resources, and/or human remains. Overall, impacts to cultural resources would be greater when compared to Connect SoCal 2024 and remain significant.

ENERGY

The No Project Alternative would likely result in increased use of energy because it assumes more large lot development, resulting in a larger share of individual detached structures. These individual structures require more energy for materials, more materials overall, and more fuel to build (e.g., additional equipment and vehicle use for site development, grading, and excavation) than would be needed for attached structures.

Table 4-5, Energy Consumption Summary, summarizes the projected energy consumption associated with implementation of the No Project Alternative compared to that of the Plan in 2050. As shown in Table 4-5, per-capita energy consumption (based on consumption by household) under the No Project Alternative would be greater than under the Plan due to the more dispersed land use pattern. The No Project Alternative also includes a housing mix with a greater proportion of large-lot single-family homes as compared to the Plan. As a result, residential energy use, residential energy and water costs per household, and residential and commercial building total energy use would be higher under the No Project Alternative than under the Plan (see Table 3 in the Connect SoCal 2024 Land Use and Communities Technical Report), reflecting the efficiencies realized by the more compact development pattern resulting from implementation of the Plan.

TABLE 4-5 Energy Consumption Summary

PERFORMANCE MEASURE	2050 PLAN	2050 NO PLAN
Residential Energy Consumed (Btu)	348 trillion Btu	358 trillion Btu
Commercial Energy Consumed (Btu)	497 trillion Btu	504 trillion Btu
Total Energy Consumed (Btu)	845 trillion Btu	862 trillion Btu
Residential Energy Cost (\$)	\$11.0 billion	\$11.2 billion
Residential Energy Cost per Household (\$)	\$1,411	\$1,439
Water-Related Electricity Use (GWh)	12,960 GWh	13,060 GWh

Source: SCAG Scenario Planning Model (2023)

Table Notes: Btu = British thermal units; GWh = gigawatt-hour

Similarly, transportation fuel consumptions would be reduced under the No Project Alternative compared to under the Plan (see Table 3 in the Connect SoCal 2024 Land Use and Communities Technical Report). As such, similar to building-related energy use, transportation-related energy use would be higher under the No Project Alternative than under the Plan, which is consistent with the overall lower VMT associated with a more concentrated development pattern facilitated by the Plan.

Likewise, residential and commercial water use and water-related energy use under the No Project Alternative would be higher than under the Plan (see Table 3 in the Connect SoCal 2024 Land Use and Communities Technical Report).

Because the No Project Alternative would include more large-lot single-family homes, which require more energy use per capita as compared to attached and multi-family homes, this alternative would result in more energy use per capita as compared to the Plan. The more dispersed land use pattern also leads to higher VMT and thereby more inefficient consumption of transportation energy than under the Plan. As discussed above, per capita energy consumption would decrease under this alternative (as the trajectory of per capita energy is on a downward trend overall), but per capita energy consumption would be higher than under the Plan. Therefore, the No Project

Alternative would result in greater impacts related to the wasteful, inefficient, or unnecessary consumption of energy during construction activities and long-term operations and impacts would remain significant.

This alternative is likely to have similar impacts on state and local plans for renewable energy or energy efficiency as compared to the Plan. Use of some renewable energy sources could be facilitated, while the use of other renewable energy sources could be hindered by this alternative (e.g., more compact development can be more energy and efficient in building design and can provide more convenient access to alternative-powered transit, EVs, and active transportation options that would reduce energy consumption, while more dispersed rural and suburban development could facilitate larger-scale solar installations). Implementation of the California Energy Code and State goals for increasing the percentage of electricity from renewable and zero-carbon sources under this alternative would be the same as under the Plan. As such, this alternative could conflict with or obstruct a state or local plan for renewable energy or energy efficiency and impacts would be significant, similar to the Plan.

GEOLOGY AND SOILS

While implementation of the Plan would result in a greater number of transportation projects than the No Project Alternative, Alternative 1 would result in similar significant impacts associated with risk as a result of surface fault rupture, ground-shaking liquefaction, landslides, and other risks associated with seismic events. This is because the same level of development would still occur but would be spread out over a wider area, thus having the potential to occur in more areas subject to or exacerbating geologic and seismic hazards. The anticipated population growth would remain constant under either alternative and the Plan, and the entire region is subject to the same seismic risk. Existing state and local building code requirements addressing substantial adverse effects due to earthquakes and seismic activity would still generally apply to the projected land use pattern and planned transportation improvements of the Plan.

Impacts related to soil erosion and loss of topsoil would be significant and would be greater under the No Project Alternative as there would be an increase in land consumed which could result in more soils exposed. Impacts related to unstable soil, expansive soil, and septic systems would also be significant and similar to the Plan as the majority of projects would continue to comply with existing regulations but there could be instances where some projects are not subject to applicable seismic safety and building code requirements.

Impacts to paleontological resources and unique geologic features would be greater under this alternative than under the Plan because the projected land use pattern of this alternative is more dispersed. The additional land disturbance resulting from the projected land use pattern under this alternative would result in greater potential for impacts to paleontological resources and unique geologic features.

GREENHOUSE GAS EMISSIONS

The greenhouse gas (GHG) emissions for on-road vehicles under the No Project Alternative would be higher than under the Plan. On a county basis, GHG emissions for on-road vehicles in the SCAG region under the No Project Alternative would also be higher than under the Plan for all counties. The more dispersed development pattern of the No Project Alternative would result in increased VMT compared to the Plan, and thus would result in a greater GHG impacts than the Plan. GHG emissions from other transportation sources would be expected to be similar

under the Plan or the No Project Alternative as these sources are regulated at the federal and state level.³ Overall, the Plan would improve regional GHG emissions compared to the No Project Alternative.

The GHG emissions for building energy and water energy would be higher under No Project Alternative than under the Plan. The more dispersed development pattern of the No Project Alternative would result in increased building energy use (as multi-family buildings are more efficient than single-family homes). The Plan would improve regional GHG emissions compared to the No Project Alternative.

Senate Bill (SB) 375 requires CARB to develop regional CO₂ emission reduction targets, compared to 2005 emissions, for cars and light trucks only for 2020 and 2035 for each of the state's MPOs. As discussed in Section 3.8, *Greenhouse Gas Emissions*, the Plan meets the SB 375 targets and is not in conflict with SB 375 requirements. Since the No Project Alternative does not include the Regional Planning Policies (i.e., no regional planning policies for PDAs) and Implementation Strategies as with the Plan, this alternative could potentially conflict with SB 375 requirements. In addition, the No Project Alternative would likely result in greater GHG emissions than the Plan due to the reduced transportation investments to facilitate trip reductions and less compact growth patterns. Under the No Plan Alternative, there remains the possibility for conflicts with AB 32 and/or SB 32, and such conflicts may be somewhat greater under the No Project scenario as land use development patterns could be less efficient. As such, the No Project Alternative could have a greater adverse impact on GHG emissions than the Plan.

HAZARDS AND HAZARDOUS MATERIALS

Hazardous materials impacts to the public or the environment associated with construction activities and operation under this alternative would be similar to impacts under the Plan. This is because of the numerous federal, state, and local requirements and regulations that minimize, but do not entirely eliminate, the creation of significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials; through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; and through handling of hazardous materials, substances, and waste within 0.25 mile of an existing or proposed school. These existing requirements and regulations would apply equally to the different projected land use patterns and planned transportation network improvements of this alternative and the Plan. Therefore, impacts would be similar. The same is true for existing requirements and regulations addressing potential safety hazards and excessive noise within an airport land use plan or within two miles of a public or public use airport, so airport-related safety and noise impacts to people residing or working in the Plan area would be the same under this alternative. The potential to encounter contaminated sites identified under Government Code Section 65962.5 may be less under the No Project Alternative as a more dispersed growth pattern would not encourage development of sites that may have been contaminated by past uses to the same extent as the Plan. However, agricultural sites can be contaminated with pesticides and herbicides; these sites may be less frequently identified on lists developed pursuant to Government Code Section 65962.5.

The more dispersed land use pattern under the No Project Alternative would be more automobile-dependent than the Plan, which would result in higher total VMT and overall vehicle delay in the region, which could further limit emergency vehicle access, emergency response, and the ability of communities to evacuate an area during an emergency as compared to the Plan. Additionally, the lack of planned transportation improvements would not provide additional vehicle access options and potential evacuation routes compared to the Plan. Therefore, the more dispersed land use pattern of this alternative and lack of transportation system improvements would result

³ Emission sources include rail, aviation, GSE, and ocean-going vessels. Rail, aviation, and ocean-going vessels are regulated at the federal level. Airport Ground Support (GSE) sources are regulated at the state level.

in greater impacts associated with emergency access and emergency response and evacuation plans and impacts would be significant.

HYDROLOGY AND WATER QUALITY

Under the No Project Alternative, fewer areas would be impacted by excavation and construction activities related to transportation projects as compared to the Plan but greater areas impacted by land use development. While the No Project Alternative would reduce the number of transportation projects built in the SCAG region, it would result in greater vacant land consumption that would, in turn, increase impervious surfaces. The additional land area permanently converted to impervious surfaces would increase the potential volume and degrade the water quality of stormwater flows, and thus would have an increased potential to contribute to violation of water quality standards or waste discharge requirements. Additional impervious surface would decrease groundwater supplies or interfere with groundwater recharge such that this alternative may impede sustainable groundwater management of the basin. Additional impervious surface also would alter drainage patterns in a manner that would increase the potential for substantial erosion, siltation, and flooding relative to the Plan. This alternative would require greater storm drainage system capacity than the Plan because of its conversion of additional land area to impervious surface area, which in turn could impede or redirect flood flows. In addition, the housing mix of this alternative would include a larger share of large-lot single-family homes, which would result in more managed landscaping areas and associated pollutants such as nutrients, herbicides, and irrigated runoff, which in turn could adversely affect surface and groundwater quality.

With fewer transportation projects than the Plan, impacts of the No Project Alternative would be reduced when compared with the Plan. As the currently planned projects included in the No Project Alternative are built, the impacts resulting from increased roadway runoff and drainage patterns would remain significant. Likewise, the impacts to groundwater infiltration caused by the increased impervious surfaces of roadway projects, and to increased flooding hazards, would remain significant.

With regard to flood hazard, tsunami, and seiche zones, the No Project Alternative would result in a larger development footprint, which would in turn increase the potential for inundation where development occurs within areas subject to such hazards. While the No Project Alternative would not result in implementation of planned transportation project that would occur under the Plan, transportation facilities are typically not subject to the same level of risk as habitable structures and other urban development. Therefore, although this alternative could potentially increase the likelihood of inundation in flood hazard, tsunami, and seiche zones, but would reduce inundation potential associated with transportation projects, impacts in this regard would remain significant and would be similar to those under the Plan.

Similar to the Plan, the No Project Alternative could result in significant impacts related to conflicting with or obstructing the implementation of a water quality control plan or sustainable groundwater management plan.

LAND USE PLANNING

Under the No Project Alternative, no new transportation investments would be made, beyond those that are currently programmed. As a result, fewer transportation projects would be built than under the Plan and new growth would occur consistent with local general plans, although it would be more dispersed than contemplated under the Plan. The more dispersed land use pattern of the No Project Alternative could provide less connectivity within existing communities because of its more dispersed allocation of future growth, and it would still have the potential to physically divide some existing communities. This impact would be the same as under the Plan. The

transportation projects in this alternative would add 4,766 fewer lane miles compared to the Plan. With fewer lane miles, planned transportation improvements under the No Project Alternative would result in less impact from physically dividing existing communities. Impacts would be less than the Plan, however, would remain significant.

The No Project Alternative would result in fewer impacts to conflicts with any applicable land use plan, policy, or regulation for the purpose of avoiding or mitigating an environmental effect due to there being fewer transportation projects, implementation of which could result in potential inconsistencies with other planned improvements or development patterns identified in applicable plans. Additionally, only some of the Plan's land use strategies would be implemented to the extent they have already been built into existing local jurisdictions' plans, policies, and regulations and therefore there would be less potential for land use policy conflicts given number of policies and strategies that would be implemented under the Plan compared to the No Project Alternative. Impacts would be less than under the Plan but would be significant.

MINERAL RESOURCES

The No Project Alternative would result in fewer lane miles compared to the Plan which would require less aggregate; however, a more dispersed growth pattern could result in greater consumption of aggregate as greater area of land would be paved. Alternative 1 could result in greater loss of availability of known mineral resources that would be of value to the region and the residents of the state, as well as locally important mineral resources, due to the greater amount of land that would be converted to urban land potentially covering more mineral resource extraction opportunities. While Alternative 1 would result in fewer lane miles, due to the more dispersed growth pattern, overall impacts would be significant and greater than the Plan.

NOISE

The No Project Alternative would result in reduced impacts from noise when compared with Connect SoCal 2024. Under Alternative 1, no new transportation investments would be made, beyond those that are currently programmed; and land use development would be more distributed than under the Plan. Alternative 1 would not implement transportation and land use strategies that focus growth along PDAs, existing corridors and in urbanized areas and would not result in construction or operation of new transportation. As a result, fewer transportation projects would be built than under the Plan, however a greater area would be affected by construction noise associated with more dispersed land use development pattern.

While fewer transportation projects would be implemented, construction noise in urban areas is generally expected and while temporary in nature, is still considered significant. Construction noise on individual sites could still exceed significance thresholds in some jurisdictions. Construction-related noise impacts would be similar, although possibly fewer sensitive receptors would be impacted under this alternative due to less urban locations that would be subject to disturbance during construction activities. This would increase the number of separate construction sites, which would increase overall noise levels associated with construction activities. However, impacts overall would be similar to the Plan and still significant.

The No Project Alternative would result in reduced vibration or groundborne noise impacts to when compared with Connect SoCal 2024. Under Alternative 1, fewer transportation projects would be implemented resulting in reduced vibration or groundborne noise. However, planned transportation improvements of this alternative would still include limited roadway and highway improvements which still constitute significant impacts. The projected land use pattern under the No Project Alternative, while more dispersed than the Plan, would not result in meaningfully different levels of vibration or groundborne noise as compared to the Plan. This impact is the same under this alternative.

Regarding aviation noise, Alternative 1 would result in similar impacts to the Plan, as there would be no change in air traffic patterns or airport operations under this alternative.

POPULATION AND HOUSING

The No Project Alternative is anticipated to result in population and housing impacts similar to those that would be generated under the Plan, because the same total population, housing, and employment are assumed, and population and housing impacts are generally population-driven. The No Project Alternative assumes a more dispersed growth pattern which may result in less pressure to redevelop existing sites and induce direct population growth by encouraging new residential and commercial development within more rural or suburban settings where such growth may not have been planned. In addition, this alternative could indirectly induce unplanned growth in some areas of the SCAG region, similar to the Plan, due to urban redevelopment projects that could displace existing housing units and affected residents; however, this alternative would result in less displacement than under the Plan given the less intense urban development compared to the Plan. Furthermore, this alternative would have a lower potential to result in indirect population growth given that it would not involve implementation of all planned transportation projects that would be constructed under the Plan, which would facilitate additional housing and commercial development in currently undeveloped portions of the region. Similarly, the lack of large-scale transportation projects under this alternative would also reduce the potential for such transportation projects, particularly linear highway and rail projects, to require the acquisition of land for right-of-way and associated displacement of existing housing and affected populations. However, the more dispersed land use pattern of this alternative could still result in displacement of substantial numbers of people or existing housing that necessitates the construction of replacement housing elsewhere. This impact is similar to the Plan and would remain significant.

PUBLIC SERVICES

The No Project Alternative is anticipated to result in public service impacts similar to those that would be generated under the Plan, because the same total population, housing, and employment are assumed, and public service impacts are generally population-driven. However, this alternative could reduce the ability of public service providers to achieve local levels of service for fire and police services due to a more dispersed land use pattern that makes it more difficult to efficiently serve the population. While the overall efficiency of fire and police services could be reduced under this alternative, this would not necessarily result in the need to construct new or expanded facilities to meet acceptable service ratios or response times. Although implementation of planned transportation projects under the Plan could potentially facilitate emergency vehicle access and associated fire and police response in some areas where new facilities are constructed, overall congestion (vehicle hours of delay [VHD]) in the region would increase compared to the Plan which could adversely affect police and fire services in some areas. Impacts related to the provision of new or altered fire and police facilities would be similar to the Plan and would remain significant.

Regarding schools and libraries, the population would be the same under each of the alternatives. While there could be less demand for these services in urban areas under the No Project Alternative (due to the more dispersed land use pattern) existing facilities may be adequate to meet demands, but there could be greater impacts in less developed areas where new facilities or expansion of existing facilities may be necessary. Given the increased growth in suburban areas, this alternative could contribute to substantial adverse physical impacts associated with the construction and subsequent operation of new or physically altered school and library facilities in order to maintain acceptable service ratios. Impacts would be significant and similar to the Plan.

RECREATION

The No Project Alternative is anticipated to result in recreation impacts similar to those that would be generated under the Plan, because the same total population, housing, and employment are assumed, and recreation impacts are generally population-driven. The No Project Alternative would, therefore, result in similar levels of overall demand for the use of parklands and open spaces in the region. Potential impacts to parks and recreational facilities in urbanized areas would be reduced compared to the Plan given the dispersed development pattern under this alternative and associated reduction in the use of such facilities. Although there would be less demand on urban parks (which are often overburdened) there could be more demand on large regional parks due to a more dispersed land use pattern, which could lead to increased deterioration of affected facilities. In addition, the more dispersed development pattern could trigger the need to construct new local parks and recreational facilities in less urbanized suburban and rural areas under this alternative. Overall, the No Project Alternative could result in the construction and expansion of parks and other recreational facilities, and this impact would be similar to the Plan.

TRANSPORTATION

The No Project Alternative would result in greater total VMT and VMT per capita than under the Plan, in part because of the more dispersed land use pattern (see **Table 4-6, VMT 2050 by County**, and **Table 4-7, Population and VMT [2050]**). This alternative would also locate fewer homes and jobs within PDAs. Therefore, VMT impact of this alternative is greater than under the Plan. This alternative would also result in lower levels of transit ridership (by approximately one million boardings) as well as walking, and biking for commute trips and all trips and it would be less complementary to existing and planned bicycle and pedestrian facilities (see **Table 4-8, Daily Transit Boardings**, and **Table 4-9, Percentage of Mode Share on Transit and Active Transportation**).

TABLE 4-6 VMT 2050 by County

COUNTY	IN THOUSANDS ^a			
	2050 NO PLAN		2050 PLAN	
	LIGHT-MEDIUM-DUTY VEHICLES	ALL VEHICLES	LIGHT-MEDIUM-DUTY VEHICLES	ALL VEHICLES
Imperial	7,000	9,000	7,000	9,000
Los Angeles	208,000	226,000	190,000	208,000
Orange	73,000	78,000	70,000	75,000
Riverside	65,000	73,000	63,000	71,000
San Bernardino	66,000	75,000	62,000	71,000
Ventura	17,000	18,000	16,000	17,000
SCAG Region	435,000	479,000	407,000	450,000

Source: SCAG modeling (2023)

Table Notes:

a. Numbers are rounded to nearest thousand.

TABLE 4-7 Population and VMT (2050)

	2050 NO PLAN	2050 PLAN	2050 PLAN VS. 2050 NO PLAN
Total Population	20,882,000	20,882,000	0%
Light-Duty Vehicle VMT	435,000,000	407,000,000	-6.4%
Total VMT	479,000,000	450,000,000	-6.1%
VMT per Capita Light-Duty Vehicles	20.84	19.49	-6.5%
VMT per Capita All Vehicles	22.92	21.57	-5.9%

TABLE 4-8 Daily Transit Boardings

DAILY TRANSIT BOARDING	2050 NO PLAN	2050 PLAN
Commuter Rail	42,7921	130,426
Local Bus	1,330,874	2,254,503
Local Rail	386,958	733,094
Bus Rapid Transit	27,748	85,997
Express Bus	14,081	19,824
HSR	0	10,779
Rapid Bus	42,000	107,054
Transitway	25,327	36,321
Total (Transit)	1,869,779	3,377,998

Source: SCAG (2023)

TABLE 4-9 Percentage of Mode Share on Transit and Active Transportation

MODE SHARE	2050 NO PLAN	2050 PLAN
Walk	8.3%	8.9%
Bike	2.0%	2.8%
Transit	2.2%	2.9%
Total	12.6%	14.7%

Source: SCAG modeling (2023)

The No Project Alternative would also result in higher VHD by 631,185 (total), as shown in **Table 4-10, Total Daily Vehicle Hours of Delay (2050)**. As summarized in **Table 4-11, Percent of PM Work Trips Completed within 45 Minutes**, the No Project Alternative would result in an overall decrease in the percentage of evening commute trips completed within 45 minutes (for single-occupant and high-occupancy vehicles) compared to the Plan. Both the Plan and No Project Alternative would result in a similar percentage of evening commute trips completed within 45 minutes via public transit. The compact development pattern included in the Plan would concentrate population in urban areas and encourage alternative modes of travel other than automobiles. Without the Plan development patterns, vehicle miles traveled, vehicle hours of delay, worker commute trips, and accident rates would be higher than under the Plan resulting in greater impacts and potential conflicts with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.

TABLE 4-10 Total Daily Vehicle Hours of Delay (2050)

COUNTY	2050 NO PLAN	2050 PLAN
Imperial	16,198	10,087
Los Angeles	1,399,627	1,126,307
Orange	331,019	221,469
Riverside	225,155	151,841
San Bernardino	278,952	131,054
Ventura	53,187	32,196
Regional	2,304,139	1,672,954

Source: SCAG modeling (2023)

TABLE 4-11 Percent of PM Work Trips Completed within 45 Minutes

COUNTY	2050 NO PLAN	2050 PLAN
Autos – Single Occupancy Vehicles		
Imperial	84.71%	84.89%
Los Angeles	77.19%	83.63%
Orange	87.47%	90.34%
Riverside	77.52%	82.88%
San Bernardino	73.37%	80.01%
Ventura	80.78%	85.28%
Region	78.84%	84.41%
Autos – High Occupancy Vehicles		
Imperial	82.30%	81.13%
Los Angeles	79.04%	83.21%
Orange	88.11%	90.19%
Riverside	78.56%	83.27%
San Bernardino	76.19%	81.62%
Ventura	83.45%	87.12%
Region	80.49%	84.47%

COUNTY	2050 NO PLAN	2050 PLAN
Transit		
Imperial	30.95%	22.67%
Los Angeles	28.32%	28.80%
Orange	22.12%	21.51%
Riverside	21.12%	17.81%
San Bernardino	20.45%	18.37%
Ventura	25.46%	17.60%
Region	27.76%	27.64%

Source: SCAG modeling (2023)

Note: Numbers are rounded to nearest thousand.

Under the No Project Alternative, the more dispersed land use pattern would result in similar impacts as the Plan since the lower overall density of development would not necessarily translate to increase potential for design hazards. However, impacts related to design hazards for transportation projects would be greater as fewer transportation improvements that meet current design standards would be constructed and the Plan’s focus on safety would not be implemented. Overall impacts in this regard would be greater and would remain significant.

Impacts associated with emergency access are discussed above under Hazards and Hazardous Materials.

TRIBAL CULTURAL RESOURCES

The No Project Alternative would result in greater impacts to tribal cultural resources when compared with the Plan. Under the No Project Alternative, there would be an additional greenfield land consumed, which would have the potential to impact previously undiscovered tribal cultural resources, such as archaeological resources, sacred sites, or human remains. The transportation network in this alternative would include fewer lane miles and could reduce the potential to impact previously undiscovered tribal cultural resources as compared to the Plan. However, due to the more dispersed land use pattern and the increase in greenfield consumed, impacts would be greater under the No Project Alternative and would be significant.

UTILITIES AND SERVICE SYSTEMS

The No Project Alternative is anticipated to result in significant impacts to utilities and service systems similar to the Plan because the same total population, housing, and employment numbers are assumed, and utilities impacts are generally population driven. However, under this alternative the same population would need to be served but with a wider geographic distribution and thus construction, relocation, or expansion of water, wastewater treatment, stormwater, electrical, natural gas, and telecommunications facilities to deliver necessary services to the expanded development footprint could be required on a more widespread basis than under the Plan.

The No Project Alternative would result in the same amount of population, housing, and employment growth as the Plan, and therefore the overall volume of wastewater generated by the anticipated growth under either scenario would be the same, and thus on a regional basis, the demands placed on wastewater treatment facilities would be similar. Despite the need for a potentially expanded wastewater conveyance network compared to the Plan, construction of which would result in relatively greater impacts as noted above, the need for construction of

new wastewater treatment facilities or expansion of existing facilities to meet projected demands would be comparable to the Plan under the No Project Alternative, and impacts would remain significant.

The larger share of single-family homes under this alternative would likely increase the demand for surface and groundwater supplies because such housing units have higher demand for water, for example through increased irrigation demand for landscaping areas and additional appliances and fixtures that use potable water (e.g., sinks, toilets, showers). As a result, this alternative would increase overall water demand and thus impacts to water supply would be greater compared to the Plan and would be significant. Irrespective of the specific origin of solid waste generated within the region, all solid waste is recycled in compliance with applicable state and local reduction goals or disposed at one of numerous landfills or waste processing facilities in the region; as such, despite the change in the overall land use pattern under this Alternative, the overall impact to landfill capacity and attainment of solid waste reduction goals in the region would be similar to that of the Plan and would be significant. Similar to the Plan, land uses to be developed in the region under this alternative would be required to follow the same federal, state, and local statutes and regulations related to solid waste. This alternative would have the same impact related to compliance with solid waste management and reduction statutes and regulations, which would remain significant.

WILDFIRE

Impacts associated with emergency response and emergency evacuation plans are discussed above under Hazards and Hazardous Materials.

Under the No Project Alternative, wildfire impacts would increase due to the increased potential for development along the wildland interface that may exacerbate fire risks. The No Project Alternative would result in additional housing units being developed within or adjacent to natural areas as compared to the Plan, resulting in greater potential wildfire risk. Areas with dry vegetation have the potential to exacerbate wildfire risk due to future development activities that could generate flammable debris piles. This is particularly true in the currently rural and underdeveloped parts of the SCAG region. Future roadway and development construction in such areas has the potential to result in significant impacts from construction equipment generating sparks or oil spill and other combustible materials leading to the start and spread of wildfires. Additional development within wildfire-prone areas would also trigger the need for new or extended roads and utility infrastructure to serve proposed uses in areas not currently served by existing infrastructure; these additional facilities would increase associated construction-related and operational impacts in the region. Additionally, the overall increase in development footprint under this alternative would also increase potential secondary risks associated with downstream or downslope flooding or landslides due to post-wildfire conditions. This impact would be greater under the No Project Alternative and would be significant.

ALTERNATIVE 2: INTENSIFIED LAND USE ALTERNATIVE

AESTHETICS

The Intensified Land Use Alternative is assumed to have the highest percentage of new housing as urban infill and the smallest development footprint among the alternatives and the Plan. Impacts from transportation projects to scenic vistas under Alternative 2 would be the same as the Plan since the transportation network would be the same as the Plan. Impacts from the land use pattern under Alternative 2 in urban areas would be greater than under the Plan because this alternative assumes higher density and intensity of development within PDAs; new structures would be taller and more concentrated, with greater likelihood of blocking or impeding scenic vistas.

However, the impact would be less in suburban and rural areas as less development would occur in these locations. Overall, impacts to scenic vistas would continue to be significant and similar to the Plan.

However, any projects proposed within the vicinity of or adjacent to scenic resources, Officially Designated State Scenic Highways, Officially Designated County Scenic Highways, or roadways eligible for State Scenic Highway designation, could have the potential to significantly impact scenic resources, vistas, and other aesthetic resources, regardless of compliance with environmental and zoning regulations. Given implementation of the same type and number of transportation projects but with a more compact development pattern under this alternative, potential impacts to scenic resources would be reduced as more development would occur within urban centers with less potential to affect views of important visual features. As such, impacts would be less than under the Plan but still significant.

The potential for substantial degradation of visual character or quality of public views of sites and their surroundings in non-urbanized areas would be less under this alternative as compared to the Plan because under this alternative a smaller share of the projected land use pattern would be located within existing non-urbanized areas. Impacts to visual quality in urbanized areas would be similar to the Plan because existing zoning and other regulations typically address visual quality and would be equally enforced under this alternative.

Regarding light and glare, the Intensified Land Use Alternative would require comparable transportation-related lighting to be installed and would introduce a similar number of vehicles that could create daytime glare effects in currently undeveloped areas in the region; however, the reduced amount of land consumed under the No Project Alternative would be expected to introduce fewer lighting sources into undeveloped areas associated with land use development resulting in potential impacts less than the Plan. Overall, light and glare impacts would be similar to the Plan and would remain significant.

AGRICULTURE AND FORESTRY RESOURCES

Conversion of agricultural land (including Prime Farmland, Unique Farmland, and Farmland of Statewide Importance), timberland, and timberland zoned Timberland Production to non-agricultural, or non-timber uses under this alternative would be less than under Plan because the projected land use pattern under the Intensified Land Use Alternative would convert fewer acres of agricultural land to urban use, although the transportation network would be generally the same. The more compact land use pattern within PDAs would reduce the amount of land disturbance overall (less greenfield developed). The improved land use and transit coordination would require less acreage to accommodate future growth and a higher concentration of development in urban areas will reduce the conversion of agricultural uses. Therefore, impacts regarding conversion of agricultural land to non-agricultural uses would be less than those of the Plan and would be significant. Due to the lack of timberland production activities in the SCAG region, however, no impacts associated with conversion of timberland and timberland zoned Timberland Production would occur under this alternative, as is the case under the Plan.

The Intensified Land Use Alternative would include implementation of transportation projects with the potential to result in the loss or conversion of forest lands, similar to the Plan; however, given the reduced footprint of land use development under the Intensified Land Use Alternative, fewer projects would be developed within GRRAs (including forest lands) compared to the Plan. Impacts under this alternative, therefore, would be less overall than those of the Plan, though impacts related to forest land would remain significant.

The potential for conflicts with zoning, land use designations, Williamson Act contracts, and/or other applicable regulations that protect agricultural and forestry resources and timberlands would be less because fewer

additional agricultural lands would be converted to nonagricultural uses than under the Plan. In addition, the potential for other changes that could result in the conversion of agricultural land to developed land uses (e.g., encroachment into agricultural production areas, loss or reduction of water supply, changes to hydrology and drainage patterns, climate change, inadequate production value, urban development pressure, etc.) would also be less due to higher intensity of development in urban areas rather than rural areas under this alternative as compared to the Plan. However, these impacts would remain significant.

AIR QUALITY

The Intensified Land Use Alternative is assumed to have the same transportation network, investments, and programs as the Plan. As such, similar to the Plan, this alternative would be expected to meet federal transportation conformity requirements and would be consistent with State Implementation Plans. In addition, this alternative would include more aggressive land use development patterns than the Plan and would have fewer motor vehicle trips and associated emissions. Therefore, this alternative would have a less than significant impact with respect to consistency with air quality management plans at the regional level. Individual projects could continue to have the potential to exceed project-level significance thresholds and, as such, there exists the potential for project-level inconsistencies with local air quality management plans. Therefore, this alternative would potentially conflict with or obstruct implementation of air quality management plans and the impact would continue to be considered significant at the project/local level.

Similar to the Plan, construction emissions would likely exceed the significance thresholds established in the CEQA Guidelines, which are typically based on daily and/or annual emissions. Individual construction projects and total regional construction on a given day or in a given year could be similar under the Plan and Intensified Land Use Alternative, and therefore similar to the Plan, construction emissions in the region under the Intensified Land Use Alternative could still result in a significant short-term impact for each individual project.

With respect to operations, under the Intensified Land Use Alternative, investments in VMT reduction projects and infill and compact land use strategies would occur to a greater degree as the Plan given a denser land use pattern. Thus, the Intensified Land Use Alternative is anticipated to have reduced levels of VMT than the Plan. In the long term, the Intensified Alternative would have a similar impact to the local AQMPs and a reduced cumulative impact since development projects would be more efficient than the Plan, resulting in fewer emissions.

As with the Plan, this alternative results in substantial reductions in cancer risk and impact to public health associated with diesel particulate matter would occur as compared to existing conditions. The cancer risk and impact to public health for this alternative would be similar compared to the Plan since the transportation network is the same as the Plan with minor adjustments for land use and transit coordination strategies. The Intensified Land Use Alternative would be expected to result in less overall emissions as compared to the Plan due to the reduction VMT given a denser land use pattern. However, localized areas with increased density could experience a greater degree of exposure to localized DPM emissions and associated health risk impacts. Similarly, with regard to nitrogen dioxide concentrations and nitrogen deposition, the Intensified Land Use Alternative would also result in overall similar or slightly lower impacts due to the reduction VMT given a denser land use pattern compared to the Plan. However, as with health risk impacts, localized areas with increased density could experience a greater degree of exposure to localized NO₂ emissions and nitrogen deposition.

Health risk associated with construction activities under the Intensified Land Use Alternative would be similar to the Plan and considered significant adjacent to extended intense construction activities. The Intensified Land Use Alternative would include new transportation investments beyond those that are currently programmed, and

individual construction projects and total regional construction on a given day or year could be similar under the Plan and this alternative, and therefore similar to the Plan, construction emissions and related construction health risk impacts in the region under the No Project Alternative could still result in a significant impact.

Objectionable odors under the Intensified Land Use Alternative are expected to be similar to the Plan. Similar to the Plan, while under normal circumstances, the Intensified Land Use Alternative would not be expected to result in substantial odor emissions or affect a substantial number of people when compared to existing conditions, given the size of and complexity air quality conditions in the region, variability in application and enforcement of air quality rules and regulations, and potential for unforeseen circumstances to occur through the 2050 Plan horizon, it is possible that construction activities and operation of transportation projects and urban land use projects consistent with land use strategies currently in place could generate emissions (such as those leading to odors) adversely affecting a substantial number of people. Individual construction projects and total regional construction on a given day or in a given year could be similar under the Plan and this alternative, which would result in similar levels of construction-related emissions (such as those leading to odors) as the Plan.

Overall impacts to air quality could be less when compared to Connect SoCal 2024 due to the more compact growth pattern and reduced VMT.

BIOLOGICAL RESOURCES

Impacts on candidate, sensitive, or special-status species (including plants, wildlife, and fish) under the Intensified Land Use Alternative would be less than under the Plan because while the transportation network would remain the same, this alternative's projected land use pattern would be more compact and convert fewer acres of greenfield development. Impacts to biological resources are directly linked to the amount of native habitat conversion in non-urban areas a potential project proposes. As such, impacts to sensitive species and their habitats, riparian habitat and sensitive natural communities, and wetlands would be less than under the Plan but would remain significant.

The reduced development footprint would also decrease the potential for reductions in habitat connectivity and wildlife movement, with the Intensified Land Use Alternative resulting in the urbanization of less essential connectivity natural areas than the Plan. Because this alternative would include the implementation of planned transportation projects, it would still result in the creation of additional barriers to wildlife movement associated with linear projects like new streets, highways, and rail facilities that would also occur under the Plan. As such, overall, impacts to wildlife movement would be similar to those of the Plan and would remain significant.

With regard to tree preservation ordinances and other local policies or ordinances protecting biological resources, the Intensified Land Use Alternative would involve construction of planned transportation projects and thus would have a similar potential compared to the Plan to result in tree removals or physical impacts to biological resources associated with the construction of such facilities. However, because the land use development pattern under this alternative would be more compact and concentrated in urbanized and other disturbed areas compared to that under the Plan, it would result in a reduced potential for impacts to trees and other biological resources and associated conflicts with policies or ordinances intended to protect them. As such, impacts would be less than the Plan but would remain significant.

Similarly, with regard to Habitat Conservation Plans and Natural Community Conservation Plans, the Intensified Land Use Alternative would result in the urbanization of less SCAG Natural Lands Conservation Areas and greenfield land than would occur under the Plan. Similar to the Plan, this alternative would also result in

implementation of planned linear transportation projects that could traverse areas within the limits of such plans, thereby increasing the potential for conflicts to occur. As such, impacts would be similar to the Plan under the No Project Alternative and would be significant.

CULTURAL RESOURCES

Increased development in urban areas, where historic buildings tend to be located, could result in greater impacts to historic resources including the character of settings that contribute to the significance of historic built environments, as pressure to redevelop historic buildings increases. Impacts to archeological, and human remains, would be less under the Intensified Land Use Alternative because this alternative's projected land use pattern would be more compact and include fewer acres of greenfield development in the same transportation network. The reduced amount of ground disturbance, such as grading and excavation, associated with the projected land use pattern of this alternative would result in lower likelihood of encountering unknown surface or subsurface archaeological resources, and/or human remains.

ENERGY

The Intensified Land Use Alternative contains more infill development to accommodate a higher proportion of growth in more energy-efficient housing types like townhomes, apartments, and smaller single-family homes, as well as more compact commercial building types. As a result, building energy consumption would decrease compared to the Plan because there would be a higher percentage of multi-family units and higher density in the regional land use pattern. Individual detached structures require more energy for materials, more materials overall, and more fuels to build than would be needed for attached structures. This alternative would result in lower energy use per capita because attached homes require less energy per capita as compared to large-lot single-family homes. This alternative would result in less impacts related to the wasteful, inefficient, or unnecessary consumption of energy during construction activities and long-term operations. However, impacts would continue to be significant.

The Intensified Land Use Alternative would be overall more energy efficient compared to the Plan and as such, would be less likely to conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Implementation of the California Energy Code and State goals for increasing the percentage of electricity from renewable and zero-carbon sources under this alternative would be the same as under the Plan.

GEOLOGY AND SOILS

The following potential substantial adverse effects, including the risk of loss, injury, or death associated with earthquakes and seismic activity under this alternative would be similar to the Plan: rupture of a known earthquake fault; strong seismic ground shaking; seismic-related ground failure, including liquefaction; and landslides. Existing state and local building code requirements addressing substantial adverse effects due to earthquakes and seismic activity would apply to the land use pattern and planned transportation improvements of the Plan. The following operational and construction impacts of this alternative would be less than the Plan because this alternative includes a more compact land use pattern that would develop fewer acres in the region: soil erosion and loss of topsoil; on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse; development on expansive soil; and inadequate soils for alternative wastewater systems.

Impacts to paleontological resources and unique geologic features would be less under this alternative than under the Plan because the land use pattern of this alternative is more compact and would develop fewer acres in the

same transportation network. The decreased land disturbance resulting from the projected land use pattern and planned transportation improvements under this alternative would result in less impacts to paleontological resources and unique geologic features.

GREENHOUSE GAS EMISSIONS

The GHG emissions for on-road vehicles in the SCAG region would be less than under the Plan given a denser land use pattern and associated reductions in VMT. GHG emissions from other transportation sources would be expected to be similar under the Plan or Alternative 2 as these sources are regulated at the federal and state level.⁴ The denser development pattern of the Intensified Land Use Alternative would result in reduced VMT compared to the Plan, and thus would result in reduced GHG impacts than the Plan.

The GHG emissions associated with building energy and water-related energy would be less with the Intensified Land Use Alternative compared to the Plan as this alternative would develop a more dense land use pattern with increased infill and compact development which tends to be more efficient than large lot development. This alternative would improve regional GHG emissions compared to the Plan.

As discussed in Section 3.8, *Greenhouse Gas Emissions*, the Plan meets the SB 375 targets and is not in conflict with SB 375 requirements. Because the Intensified Land Use Alternative would have more compact and sustainable development patterns and more aggressive implementation of Regional Planning Policies, strategies, and investments than under the Plan, this alternative would likely lead to per capita GHG emissions that would also meet SB 375 targets. Therefore, this alternative's environmental impact in terms of conflict with SB 375 requirements would likely be similar to that of the Plan. Moreover, the Intensified Land Use Alternative would likely result in less GHG emissions than the Plan due to intensified transportation investments to facilitate greater trip reductions and land use strategies to increase the percentage of WfH workers. However, it could also have greater rebound effect than that under the Plan, thereby greater GHG emissions, as there would likely be more WfH workers having opportunities to do more travel and generate more trips for no-work purposes. As for the Plan, this alternative could still have the possibility of conflicts with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions including AB 32 and SB 32. The GHG impacts (except for compliance with SB 375) would remain significant under this alternative and similar to the Plan's impacts on GHG emissions.

HAZARDS AND HAZARDOUS MATERIALS

Hazardous materials impacts to the public or the environment associated with construction activities and operation under the Intensified Land Use Alternative would be similar to impacts under the Plan. This is because of the numerous federal, state, and local requirements and regulations that minimize the creation of significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials; through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; and through handling of hazardous materials, substances, and waste within 0.25 mile of an existing or proposed school. These existing requirements and regulations would apply equally to the different projected land use patterns and planned transportation network improvements of this alternative and Plan, so impacts would be the same. The same is true for existing requirements and regulations addressing potential safety hazards and excessive noise within an airport land use plan or within two miles of a public or public use airport,

⁴ Emission sources include rail, aviation, GSE, and ocean-going vessels. Rail, aviation, and ocean-going vessels are regulated at the federal level. Airport Ground Support (GSE) sources are regulated at the state level.

so airport-related safety and noise impacts to people residing or working in the plan area would be the same under this alternative.

The more compact land use pattern under this alternative would be less automobile-dependent than the Plan, which would result in lower total VMT and overall vehicle delay in the region, which would improve emergency vehicle access, emergency response, and the ability of communities to evacuate an area during an emergency as compared to the Plan. Additionally, the planned transportation improvements under this alternative would provide additional vehicle access options and potential evacuation routes similar to the Plan. Therefore, the more compact land use pattern of this alternative and implementation of planned transportation system improvements would result in fewer impacts associated with emergency access and emergency response and evacuation plans but impacts would remain significant.

HYDROLOGY AND WATER QUALITY

Impacts associated with hydrology and water quality under the Intensified Land Use Alternative would be less than under the Plan because its more compact land use would result in disturbance to a smaller land area during construction activities and would permanently convert a smaller amount of land to impervious surfaces, such as parking lots, buildings, roadways, highways, and other paved areas, as compared to the Plan. The decreased land area subject to construction disturbance would decrease potential for short-term discharge of pollutants from construction sites into surface or groundwater.

The decreased land area permanently converted to impervious surfaces would decrease the potential volume and improve the water quality of stormwater flows relative to the Plan. Thus, impacts related to violation of water quality standards or waste discharge requirements would be less than the Plan but would be significant. Less impervious surface also would reduce interference with groundwater recharge and result in less alteration of drainage patterns in a manner that would increase the potential for substantial erosion, siltation, and flooding. This alternative would require less storm drainage system capacity than the Plan because of its conversion of reduced land area to impervious surface area, which in turn could result in less redirection of flood flows. Therefore, impacts associated with groundwater supplies, groundwater recharge, alteration of existing drainage patterns, erosion and siltation, exceedance of stormwater drainage capacity, and flooding would be reduced compared to the Plan but would remain significant,

With regard to flood hazard, tsunami, and seiche zones, the Intensified Land Use Alternative would result in a smaller development footprint, which would in turn decrease the potential for inundation where development occurs within areas subject to such hazards. This alternative would result in implementation of planned transportation project that would also occur under the Plan, but transportation facilities are typically not subject to the same level of risk with regard to flooding as habitable structures and other urban development. Therefore, although this alternative could potentially decrease the likelihood of inundation in flood hazard, tsunami, and seiche zones, and would result in a similar inundation potential associated with transportation projects, impacts in this regard would remain significant and would be similar to those under the Plan.

In addition, the housing mix of this alternative would include a smaller share of single-family homes, which would result in less managed landscaping areas and associated pollutants such as nutrients, herbicides, and irrigated runoff, which in turn could adversely affect surface and groundwater quality. Impacts to groundwater recharge, erosion, siltation and flooding would be less than the Plan but would remain significant.

Similar to the Plan, the Intensified Land Use Alternative could also result in significant impacts related to conflicting with or obstructing the implementation of a water quality control plan or sustainable groundwater management plan.

LAND USE AND PLANNING

The more compact land use pattern of this alternative provides more connectivity within existing communities, so it would not physically divide any existing communities. This impact is similar to the Plan. New roadway or highway improvements can physically divide existing communities by providing physical barriers where none previously existed. Expansion of existing roadways and highways also can physically divide existing communities to the extent that wider facilities with additional lanes represent greater physical barriers than narrower facilities. The planned transportation improvements of this alternative would be generally the same as the Plan network, which means it would result in similar impacts from physically dividing existing communities.

The Intensified Land Use Alternative would result in comparable impacts regarding conflicts with any applicable land use plan, policy, or regulation for the purpose of avoiding or mitigating an environmental effect due to the implementation of planned transportation projects, implementation of which could result in potential inconsistencies with other planned improvements or development patterns identified in applicable plans. Additionally, it is assumed that the majority of the Plan's land use strategies would be implemented and therefore there would be a similar potential for land use policy conflicts under this alternative. Impacts would be similar to those of the Plan and would be significant as with the Plan.

MINERAL RESOURCES

The Intensified Land Use Alternative could result in less loss of availability of known mineral resources that would be of value to the region and the residents of the state, as well as locally important mineral resources, due to the reduction in land that would be converted to urban land potentially covering more mineral resource extraction opportunities. Transportation network improvements would occur similar to the Plan, requiring a comparable amount of aggregate resources to be used for the construction of the transportation network improvements. Although transportation network impacts would be similar under this alternative, overall impacts would be less than the Plan given the more compact land use pattern and associated incremental reduction in access to potential mineral resources in the region. Impacts would be reduced but would remain significant.

NOISE

The Intensified Land Use Alternative would generate noise levels generally similar to those that would be generated under the Plan because the same total population, housing, and employment are assumed. However, the more compact land use pattern of this alternative would direct less housing growth into non-urbanized areas, decreasing construction and operational noise levels relative to the Plan in areas that tend to have lower existing noise levels than more developed communities. Noise thresholds would be less likely to be exceeded than under the Plan.

The projected land use pattern of this alternative, while more compact than the Plan, would not result in land use types that would result in different levels of vibration or groundborne noise. There would potentially be less construction-related noise impacts under this alternative due to the fewer acres of land area that would be subject to disturbance during construction activities associated with the more compact land use pattern. This could decrease the number of separate construction sites, which could decrease overall noise levels associated with

construction activities relative to the Plan. However, more construction activity could occur in urban and suburban areas under this alternative which could mean more people are exposed to increased noise associated with construction activity.

The planned transportation improvements of this alternative would include the same lane miles of roadway and highway improvements, and this would also not result in significantly different levels of vibration or groundborne noise relative to the planned transportation improvements identified in the Plan. This impact would be similar under this alternative and would remain significant.

With regard to aviation noise, impacts would be similar to the Plan as this alternative would not affect airport capacity, and impacts would remain significant.

POPULATION AND HOUSING

Impacts related to population and housing would be generally similar under all alternatives, because the same number of people and dwelling units are assumed. However, the Intensified Land Use Alternative could indirectly induce unplanned growth in some areas of the SCAG region, similar to the Plan, due to urban redevelopment projects that could displace existing housing units and affected residents. Due to the more compact land use pattern, this alternative could result in greater displacement than under the Plan given the more intense urban development compared to the Plan. Additionally, this alternative would have a comparable potential to result in indirect population growth given that it would also involve implementation of all planned transportation projects that would be constructed under the Plan, which would potentially facilitate additional housing and commercial development in currently undeveloped portions of the region. The more compact land use pattern of this alternative combined with the same lane miles of roadway and highway improvements could still result in displacement of substantial numbers of people or existing housing that necessitates the construction of replacement housing elsewhere. Since this potential for displacement would be increased under this alternative, this impact is greater than under the Plan and would remain significant.

PUBLIC SERVICES

The Intensified Land Use Alternative is anticipated to result in public service impacts similar to those that would be generated under the Plan, because the same total population, housing, and employment are assumed. The planned transportation improvements of this alternative would have the same public services impacts as the Plan. It is possible that denser development in urban areas, although more efficient from a service perspective, could result in the need for more police and fire services from a demand perspective resulting in a need for new facilities to maintain service ratios. Nonetheless, due to the more efficient land use pattern, this impact would be less than the Plan.

Similarly, the more compact land use pattern would allow public service facilities to more efficiently serve the population for schools and libraries. As a result of increased demand for services there could be a need for new and/or expanded facilities resulting in physical impacts. As such, this impact would be significant, but less than those of the Plan.

RECREATION

The Intensified Land Use Alternative is anticipated to result in recreation impacts similar to those that would be generated under the Plan, because the same total population, housing, and employment are assumed, and

recreation impacts are generally population-driven. Potential impacts to parks and recreational facilities in urbanized areas would be increased compared to the Plan given the more compact development pattern under this alternative and associated increase in the use of such facilities. Although there would be increased demand on urban parks (which are often overburdened) there could be reduced demand on large regional parks given the development focus in urban centers, which could reduce potential deterioration of affected regional facilities. In addition, the more compact development pattern could trigger the need to construct new local parks and recreational facilities in urbanized areas under this alternative to serve the increased urban population. Overall, this alternative would result in similar impacts to parks and recreational facilities compared to the Plan and impacts would be significant.

TRANSPORTATION

The Intensified Land Use Alternative would result in slightly lower VMT (total and per capita), less VHD and less vehicle hours of travel (VHT) compared to the Plan. Despite the overall reduction in VMT, VHD, and VHT in the SCAG region as compared to the Plan, this alternative may not maximize mobility and accessibility for all people and goods in the region to the extent of the Plan because it could result in more severe localized traffic congestion conditions with adverse mobility and reliability consequences for goods and people (increased vehicle and truck delay), particularly in dense urban centers that tend to experience vehicle congestion under existing conditions. Although this alternative could result in localized congestion, it would facilitate overall mobility in the region and foster transportation options as would occur under the Plan, and thus impacts regarding conflicts with programs, plans, ordinances, or policies addressing the circulation system would be similar to the Plan and would be significant. As noted above, this alternative would result in an incremental reduction in VMT compared to the Plan, and thus impacts associated with conflicts or inconsistencies with CEQA Guidelines Section 15064.3(b) would be less than under the Plan but would remain significant. While this alternative could increase and exacerbate existing localized congestion in compact urbanized areas, overall, it would result in similar impacts associated with design hazards given compliance with applicable engineering design standards for transportation improvements. As such, impacts regarding design hazards would be similar to the Plan and would remain significant.

Impacts associated with emergency access are discussed above under Hazards and Hazardous Materials.

TRIBAL CULTURAL RESOURCES

The Intensified Land Use Alternative would result in less impacts to tribal cultural resources when compared with the Plan. Under this alternative, although a similar suite of transportation projects would be implemented, there would be fewer acres of greenfield land consumed, which would reduce the potential to impact previously undiscovered tribal cultural resources, such as archaeological resources, sacred sites, or human remains. Due to the more compact land use pattern and the reduction in greenfield consumed, impacts would be less under this alternative.

UTILITIES AND SERVICE SYSTEMS

The Intensified Land Use Alternative is anticipated to result in impacts to utilities and service systems similar to those that would be generated under the Plan because the same total population, housing, and employment are assumed. However, under this alternative the same population would need to be served but with a more compact geographic distribution and thus construction, relocation, or expansion of water, wastewater treatment, stormwater, electrical, natural gas, and telecommunications facilities to deliver necessary services to the reduced development footprint would be required to a lesser extent than under the Plan.

The Intensified Land Use Alternative would result in the same amount of population, housing, and employment growth as the Plan, and as such the overall volume of wastewater generated by the anticipated growth under either scenario would be the same, and thus on a regional basis, the demands placed on wastewater treatment facilities would be similar. Despite the need for a potentially reduced wastewater conveyance network compared to the Plan, construction of which would result in relatively fewer impacts as noted above, the need for construction of new wastewater treatment facilities or expansion of existing facilities to meet projected demands would be comparable to the Plan under the Intensified Land Use Alternative, and impacts would remain significant.

With fewer single-family homes, this alternative could decrease demand for surface and groundwater supplies because such single-family homes have higher demand for water. Single-family homes typically require additional water due to increased irrigation demand for landscaping areas and additional appliances and fixtures that use potable water (e.g., sinks, toilets, showers). As a result, this alternative would decrease overall water demand, and thus, impacts to water supply would be reduced compared to the Plan but would remain significant.

Regardless of the specific origin of solid waste generated within the region, all solid waste is recycled in compliance with applicable state and local reduction goals or disposed at one of numerous landfills or waste processing facilities in the region; as such, despite the change in the overall land use pattern under this Alternative, the overall impact to landfill capacity and attainment of solid waste reduction goals in the region would be similar to that of the Plan and would be significant. Similar to the Plan, land uses to be developed in the region under this alternative would be required to follow the same federal, state, and local statutes and regulations related to solid waste. This alternative would have the same impact related to compliance with solid waste management and reduction statutes and regulations, which would remain significant.

WILDFIRE

Impacts associated with emergency response and emergency evacuation plans are discussed above under Hazards and Hazardous Materials.

The Intensified Land Use Alternative would result in fewer impacts related to wildfires than the Plan. This alternative would result in fewer housing units constructed in wildfire zones compared to the Plan. Therefore, fewer people and structures would be placed within proximity to wildfire-prone areas at urban-wildland interfaces. This alternative would reduce the amount of new development within wildfire-prone areas compared to the Plan and would also decrease the need for new or extended roads and utility infrastructure to serve proposed uses in areas not currently served by existing infrastructure. The reduced demand for such facilities would decrease associated impacts resulting from their construction and operation. Additionally, the overall decrease in development footprint under this alternative would also reduce potential secondary risks associated with downstream or downslope flooding or landslides due to post-wildfire conditions. Impacts would be less than the Plan but would be significant.

4.5.3 SUMMARY OF ALTERNATIVES COMPARISON

The performance comparison for the No Project Alternative and the Plan is included in the Connected SoCal 2025 Land Use and Community Technical Report. **Table 4-12, Comparison of Significant Adverse Environmental Impacts for Connect SoCal 2024 and Alternatives** presents a summary the relative level of environmental impacts associated with each alternative as compared to the Plan based on CEQA Guidelines Appendix G significance threshold questions used to analyze Plan's environmental impacts in Chapter 3 of this 2024 PEIR. For each resource area evaluated, Table 4-12 summarizes whether the impacts of the alternative would generally result in greater or lesser impacts than those of the Plan.

TABLE 4-12 Comparison of Significant Adverse Environmental Impacts for Connect SoCal 2024 and Alternatives

ENVIRONMENTAL ISSUE	CONNECT SOCAL 2024	ALTERNATIVE 1: NO PROJECT	ALTERNATIVE 2: INTENSIFIED LAND USE ALTERNATIVE
Aesthetics			
Scenic Vistas (AES-1)	Significant	Similar (Significant)	Similar (Significant)
Scenic Resources (AES-2)	Significant	Less (Significant)	Less (Significant)
Visual Character (AES-3)	Significant	Similar (Significant)	Less (Significant)
Light and Glare (AES-4)	Significant	Similar (Significant)	Similar (Significant)
Agriculture and Forestry Resources			
Convert Prime Farmland (AG-1)	Significant	Similar (Significant)	Less (Significant)
Conflict with Williamson Act (AG-2)	Significant	Similar (Significant)	Less (Significant)
Conflict with forest land zoning (AG-3)	Significant (except for timberland)	Similar (Significant)	Similar (Significant)
Loss of forest land (AG-4)	Significant	Similar (Significant)	Less (Significant)
Other changes that result in loss of farmland or forest land (AG-5)	Significant	Greater (Significant)	Less (Significant)
Air Quality			
Conflict with Air Quality Plans (AQ-1)	Significant (except for federal transportation conformity requirements)	Greater (Significant)	Similar (significant except for federal transportation conformity requirements)
Cumulatively considerable net increase in criteria pollutants (AQ-2)	Significant	Greater (Significant)	Less (Significant)
Expose sensitive receptors (AQ-3)	Significant	Similar (Significant)	Greater (Significant)
Odor (AQ-4)	Significant	Similar (Significant)	Similar (Significant)
Biological Resources			
Sensitive Species (BIO-1)	Significant	Similar (Significant)	Less (Significant)
Riparian Habitat (BIO-2)	Significant	Similar (Significant)	Less (Significant)
Wetlands (BIO-3)	Significant	Similar (Significant)	Less (Significant)
Migratory Fish/Birds (BIO-4)	Significant	Similar (Significant)	Similar (Significant)
Tree Preservation (BIO-5)	Significant	Similar (Significant)	Less (Significant)
Local Plans/HCPs (BIO-6)	Significant	Similar (Significant)	Similar (Significant)
Cultural Resources			
Historical Resources (CUL-1)	Significant	Greater (Significant)	Greater (Significant)
Archeological Resources (CUL-2)	Significant	Greater (Significant)	Less (Significant)
Disturb Human Remains (CUL-3)	Significant	Greater (Significant)	Less (Significant)

ENVIRONMENTAL ISSUE	CONNECT SOCAL 2024	ALTERNATIVE 1: NO PROJECT	ALTERNATIVE 2: INTENSIFIED LAND USE ALTERNATIVE
Energy			
Wasteful and inefficient use of energy (ENR-1)	Significant	Greater (Significant)	Less (Significant)
Conflict with or obstruct renewable energy plans (ENR-2)	Significant	Similar (Significant)	Similar (Significant)
Geology and Soils			
Fault rupture, ground shaking, ground failure/ liquefaction, landslides (GEO-1)	Significant	Similar (Significant)	Similar (Significant)
Soil Erosion (GEO-2)	Significant	Greater (Significant)	Less (Significant)
Unstable Soil (GEO-3)	Significant	Similar (Significant)	Less (Significant)
Expansive Soil (GEO-4)	Significant	Similar (Significant)	Less (Significant)
Septic Systems (GEO-5)	Significant	Similar (Significant)	Less (Significant)
Paleontological Resources (GEO-6)	Significant	Greater (Significant)	Less (Significant)
Greenhouse Gas Emissions			
Generate greenhouse gas emission (GHG-1) and Conflict with Plans (GHG-2)	Significant (except for consistency with SB 375)	Greater (Significant)	Similar (Significant except for consistency with SB 375)
Hazards and Hazardous Materials			
Routine Transport (HAZ-1)	Significant	Similar (Significant)	Similar (Significant)
Upset conditions (HAZ-2)	Significant	Similar (Significant)	Similar (Significant)
Emissions within 0.25 mile of school (HAZ-3)	Significant	Similar (Significant)	Similar (Significant)
Hazardous materials site (HAZ-4)	Significant	Similar (Significant)	Similar (Significant)
Airport hazards (HAZ-5)	Significant	Similar (Significant)	Similar (Significant)
Emergency response and evacuation plans (HAZ-6)/ (WF-1) and Emergency access (TRA-4)	Significant	Greater (Significant)	Less (Significant)
Hydrology and Water Quality			
Violate water quality standard (HYD-1)	Significant	Greater (Significant)	Less (Significant)
Decrease groundwater (HYD-2)	Significant	Greater (Significant)	Less (Significant)
Erosion or siltation (HYD-3A)	Significant	Greater (Significant)	Less (Significant)
Flooding (HYD-3B)	Significant	Greater (Significant)	Less (Significant)
Stormwater runoff (HYD-3C)	Significant	Greater (Significant)	Less (Significant)
Impede or redirect flood flows (HYD-3D)	Significant	Greater (Significant)	Less (Significant)
Flood, seiche, tsunami (HYD-4)	Significant	Similar (Significant)	Similar (Significant)
Conflict with water quality control plan (HYD-5)	Significant	Similar (Significant)	Similar (Significant)

ENVIRONMENTAL ISSUE	CONNECT SOCAL 2024	ALTERNATIVE 1: NO PROJECT	ALTERNATIVE 2: INTENSIFIED LAND USE ALTERNATIVE
Land Use and Planning			
Physically divide a community (LU-1)	Significant	Less (Significant)	Similar (Significant)
Conflict with land use plans (LU-2)	Significant	Less (Significant)	Similar (Significant)
Mineral Resources			
Loss in availability of mineral resources (MIN-1)	Significant	Greater (Significant)	Less (Significant)
Loss of locally important mineral resources (MIN-2)	Significant	Greater (Significant)	Less (Significant)
Noise			
Temporary or permanent increase in noise levels in excess of established standards (NOI-1)	Significant	Similar (Significant)	Less (Significant)
Groundborne vibration or noise (NOI-2)	Significant	Similar (Significant)	Similar (Significant)
Airport noise (NOI-3)	Significant	Similar (Significant)	Similar (Significant)
Population and Housing			
Induce unplanned population growth (POP-1)	Significant	Similar (Significant)	Similar (Significant)
Displace people or housing (POP-2)	Significant	Similar (Significant)	Greater (Significant)
Public Services			
Fire (PS-1)	Significant	Similar (Significant)	Less (Significant)
Police (PS-2)	Significant	Similar (Significant)	Less (Significant)
Schools (PS-3)	Significant	Similar (Significant)	Less (Significant)
Library (PS-4)	Significant	Similar (Significant)	Less (Significant)
Recreation			
Increase park use (REC-1)	Significant	Similar (Significant)	Similar (Significant)
Construction of new parks (REC-2) and Parks (PS-5)	Significant	Similar (Significant)	Similar (Significant)
Transportation			
Conflict with program, plan, ordinance, or policy addressing circulation system (TRA-1)	Significant	Greater (Significant)	Similar (Significant)
Conflict with CEQA Guidelines Section 15064.3(b) (TRA-2)	Significant	Greater (Significant)	Less (Significant)
Increase hazards (TRA-3)	Significant	Greater (Significant)	Similar (Significant)
Tribal Cultural Resources			
Adverse change in a TCR (TCR-1)	Significant	Greater (Significant)	Less (Significant)

ENVIRONMENTAL ISSUE	CONNECT SOCAL 2024	ALTERNATIVE 1: NO PROJECT	ALTERNATIVE 2: INTENSIFIED LAND USE ALTERNATIVE
Utilities and Service Systems			
New or expanded water, wastewater treatment, storm water, electric, natural gas, or telecommunications facilities (UTIL-1)	Significant	Similar (Significant)	Less (Significant)
New or expanded wastewater treatment (UTIL-2)	Significant	Similar (Significant)	Similar (Significant)
Sufficient water supply (UTIL-3)	Significant	Greater (Significant)	Less (Significant)
Generate excess solid waste or conflict with statutes (UTIL-4)	Significant	Similar (Significant)	Similar (Significant)
Comply with statues and regulations (UTIL-5)	Significant	Similar (Significant)	Similar (Significant)
Wildfire			
Slope, prevailing winds may exacerbate wildfire risk (WF-2)	Significant	Greater (Significant)	Less (Significant)
Expose people or structures to wildland fires (HAZ-7)	Significant	Greater (Significant)	Less (Significant)
Installation or maintenance of infrastructure that may exacerbate fire risk (WF-3)	Significant	Greater (Significant)	Less (Significant)

4.6 ALTERNATIVES CONSIDERED BUT REJECTED

Pursuant to CEQA, the range of alternatives required in the PEIR is limited to only those alternatives necessary to permit a reasoned choice. The PEIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative. CEQA Guidelines Section 15126.6(c) requires that an EIR should also identify any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency’s determination. CEQA Guidelines Section 15126.6(c) also states that among the factors that may be used to eliminate alternatives from detailed consideration in a CEQA document are (1) failure to meet most of the basic project objectives; (2) infeasibility; or (3) inability to avoid significant environmental impacts.

This PEIR did not consider and reject any specific alternatives to the Plan. However, as described in Section 4.2, *Methodology*, the two selected alternatives provide expected “book-ends” of the range of potential alternatives to present a framework for understanding the greatest or least potential impacts from alternatives when compared to the Plan. Therefore, there could be alternatives not specifically analyzed but whose impacts could fall within the range and magnitude of impacts captured in the bookend analysis.

4.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA Guidelines Section 15126.6 requires that an “environmentally superior” alternative be selected among the alternatives that are evaluated in the EIR. In general, the environmentally superior alternative is the alternative that would be expected to generate the fewest adverse impacts. If the No Project Alternative is identified as environmentally superior, then another environmentally superior alternative shall be identified among the other alternatives.

For purposes of this 2024 PEIR, the impacts associated with reducing global GHG emissions and regional air pollutants must be examined alongside the other adverse impacts that are caused by increasing the density and intensity of the region’s development patterns and, for example, bringing people closer to sources of air pollutants such as transit corridors and freeways (even though these sources would have fewer emissions in the future, despite increasing traffic, due to emission controls). The tension between CEQA’s mandate to reduce all types of impacts to the maximum extent feasible, and the statutory mandates of reducing GHG emissions under AB 32, SB 32, and SB 375, is a well-recognized CEQA compliance challenge.⁵ CEQA does not provide any legal mechanism for “weighting” environmental impacts and scoring some categories of impacts as “more important” and others as “less important.” Instead, CEQA is structured to require the disclosure of all impacts for each alternative and the Plan, to foster informed decision making and to disclose the inherent trade-offs between different types and magnitudes of impacts associated with different alternatives.

As indicated by the comparative analysis, the Plan and each alternative have the potential to result in “significant and unavoidable” impacts in all issue areas, but the degree and location of impacts would differ between alternatives. Alternative 2, the Intensified Land Use Alternative, would result in somewhat less adverse impacts for some issues in 17 of the 20 environmental topics that were analyzed. The anticipated increases in the density and intensity of development within the region’s established communities under the Intensified Alternative would result in more localized impacts that are greater than the Plan in two areas (historical resources and population and housing).

Of the two alternatives, the Intensified Land Use Alternative would be considered the environmentally superior alternative due to fewer impacts including reduced VMT and GHG emissions, and because it would substantially restrict the use of land for single-family development. This alternative concentrates development in existing urban centers and near transit stations and activity centers. As such, the Intensified Land Use Alternative has less impact on rural and undeveloped areas, specifically greenfields.

While the Intensified Land Use Alternative would be considered the environmentally superior alternative because of the more compact land use patterns fewer emissions and reduced VMT, this alternative requires implementation of the same mitigation measures required for the Plan and would not resolve any of the significant and unavoidable impacts of the Plan. However, the more intensified and compact land use development pattern would result in somewhat less adverse impacts to aesthetics, agriculture and forestry resources, regional air quality, biological resources, archaeological resources, energy, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, mineral resources, noise (although more urban noise), public services (although more demand for services in existing urban areas), transportation, tribal cultural resources, utilities and service systems (although more impacts on existing systems in urban areas), and wildfire due to the

⁵ Adams, Tom (California League of Conservation Voters), and Amanda Eaken and Anne Nothoff (Natural Resources Defense Council). 2010. Tackling California’s Global Warming Challenge: A Guide to SB 375, by Tom Adams (California League of Conservation Voters), p. 24.

denser pattern of development. The Intensified Land Use Alternative would also achieve greater overall reductions in criteria air pollutants and greenhouse gas emissions, as a result of the more compact pattern of land use development. The Intensified Land Use Alternative may not avoid any of the significant and unavoidable impacts of the Plan because those impacts are primarily associated with net increase in population anticipated for the SCAG region and depend on detailed location information with respect to development—which is not reasonably foreseeable at a programmatic level. Therefore, the comparative impacts between the Intensified Land Use Alternative and the Plan are primarily related to the level of severity of the impacts.

Similarly, the No Project Alternative does not avoid the significant and unavoidable impacts of the Plan, and in several instances the impacts would be more adverse due to the failure to achieve reductions in the consumptive use of land, energy, and water resources achieved through the policies and program embedded in the Plan that facilitate a more efficient use of these resources.

As discussed throughout this 2024 PEIR, SCAG has no land use authority; rather it sets regional land use policy. SB 375 addresses the land use component (in the context of transportation planning) of statewide efforts to achieve AB 32 GHG reduction goals that include all sectors of the economy. In order to meet the SB 375 targets for statewide GHG reductions, CARB identified that SCAG must plan to reduce GHG emissions by 19 percent by 2035. SCAG has developed the SCS (the regional land use policy component of Connect SoCal 2024), which sets forth land use strategies to meet these GHG emissions reduction targets. Actual implementation of the SCS will be undertaken by local jurisdictions through general plans and specific plans and through actions on individual projects.

While the Intensified Land Use would achieve CARB SB 375 GHG targets (as well as reducing impacts on open space and agricultural lands), the Intensified Land Use Alternative would have other impacts. For example, the Intensified Land Use Alternative would result in more development in urban areas potentially overloading infrastructure in some areas. This scenario assumes that very little development would be approved outside urban areas, which could require zoning changes or land use interventions beyond those currently in place. In addition, as urban areas become denser (more units per acre), urban infrastructure is used more:

- Water and sewer lines are required to carry more, greater than the current capacity, which could result in the need to construct additional capacity in the older infill areas at significant cost.
- Demand for police and fire services increases requiring expansion of existing stations and service personnel (although significant environmental impacts are not anticipated from such construction).
- Parks are used more, resulting in potential crowding and/or overuse, with facilities becoming worn and substandard (grass becomes overused and dies, equipment breaks, etc.) and/or the need to construct more parks and recreational facilities.
- Passenger vehicle transportation infrastructure cannot accommodate peak period volumes creating increased noise and air emission impacts including in proximity to sensitive receptors. Increasing population in the infill core areas could also reduce mobility for goods movement which cannot use alternative modes during peak periods, resulting in more trucks in stop and go traffic, impacting air quality and noise.

The Plan allows for some development outside urban areas. While development outside urban areas does require the construction of new infrastructure, it generally occurs in less populated areas and would expose fewer people to construction impacts. Also, in general, infrastructure in less urban areas has greater available capacity since infrastructure is generally sized for capacities that can accommodate substantially more than the current densities

(parks, police stations, water lines, etc. have minimum sizes that can generally accommodate more than rural level density). New development on the periphery is often closer to higher capacity sewer trunk lines, treatment plants and water wells, lowering infrastructure costs compared to retrofitting older existing urban areas.

Each community must determine what level of population it can support – balancing infrastructure capacity and population density. In developing the Plan, SCAG has satisfied its obligation under SB 375 to identify a policy and growth pattern that meets desired GHG reduction goals.

The Plan provides general guidance on location of development. The Plan does not impose specific land use controls. This EIR evaluates a number of potential scenarios. It will be up to each jurisdiction to interpret the Connect SoCal 2024 Regional Plan Policies and through ongoing monitoring of key performance measures (in cooperation with SCAG), monitor GHG reductions. Through ongoing monitoring SCAG will adjust regional policy as needed (in the next RTP/SCS or in interim amendments if needed) to ensure that the region complies with applicable State law including AB 32 and SB 375.

SCAG is not rejecting the Intensified Land Use Alternative or any alternative with increased density and/or greater percentage of high-density housing that might fall between the Intensified Land Use Alternative and the Plan as a possible land use scenario for 2050. Because SCAG has no land use authority, it has no mechanism to impose such detailed land use changes, however, the Plan would not preclude local jurisdictions from conforming with the Intensified Land Use Alternative.

In sum, the Plan is the preferred alternative because it balances local input with the need to increase densities, complies with federal transportation conformity requirements for the RTP, and reduces GHG emissions consistent with SB 375 targets for the SCS, thereby achieving the Plan goals and objectives. While additional densities in urban areas could further reduce GHG emissions, such increased densities may not be consistent with existing General Plans and local planning policies.

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CHAPTER 5

Other CEQA Considerations

- 5.1 Significant Environmental Effects of Plan Implementation That Cannot Be Avoided
- 5.2 Significant Irreversible Environmental Changes
- 5.3 Growth-Inducing Impacts

This chapter presents a discussion of the significant environmental effects of the Plan, significant irreversible changes resulting from implementation of the Plan, and growth-inducing effects of the Plan as required by the California Environmental Quality Act (CEQA). More specifically, CEQA Guidelines Section 15126 states that an Environmental Impact Report (EIR) must include a discussion of the following topics:

- Significant environmental effects which cannot be avoided if the proposed project is implemented.
- Significant irreversible environmental changes which would be involved in the proposed project should it be implemented.
- Growth-inducing effects of the proposed project.

In addition, CEQA Guidelines Section 15128 requires a brief statement of the reasons that various possible effects of a project have been determined not to be significant and, therefore, are not discussed in detail in the EIR. This 2024 PEIR analyzed all potential effects of the Project (Connect SoCal 2024 or the Plan), as described in CEQA Guidelines Appendix G. There is no listing of effects which are determined not to be significant.

5.1 SIGNIFICANT ENVIRONMENTAL EFFECTS OF PLAN IMPLEMENTATION THAT CANNOT BE AVOIDED

CEQA Guidelines Section 15126.2(c) requires that an EIR describe any significant impacts that cannot be avoided, even with the implementation of feasible mitigation measures. This 2024 PEIR provides a programmatic analysis of the regional impacts expected to occur from implementation of the transportation projects (approximately 2,000 projects) and the policies and strategies identified in the Plan. As described in Chapter 2, *Project Description*, the Plan seeks to encourage and facilitate growth in Priority Development Areas (PDAs) and minimize growth in Green Region Resource Areas (GRRAs) that warrant protection. Nonetheless, given the long-term nature of the Plan (a minimum of 20 years), the potential magnitude, scale, and distribution of possible changes during the lifetime of the Plan, the unforeseeable nature of specific projects and circumstances, and limitations in the degree of specificity, this 2024 PEIR conservatively and reasonably identifies all environmental impacts as significant, except for two specific issues: (1) Plan's consistency with federal transportation conformity for Air Quality and (2) Plan's consistency with SB 375 for Greenhouse Gas Emissions.¹

To address these significant impacts, the PEIR identifies SCAG mitigation measures as well as project-level mitigation measures which can and should be considered by lead agencies to reduce impacts of individual projects as appropriate and feasible. Implementation of the Plan, including Regional Planning Policies and Implementation Strategies as features of the Plan, compliance with all applicable laws and regulations, and implementation of mitigation measures would still result in significant and unavoidable project-related and/or cumulative impacts in the following areas:

- **Aesthetics:** Implementation of the Plan may result in the conversion of open space or vacant lands to new uses. Areas potentially affected include designated open space visible from United States Forest Service, California Department of Transportation (Caltrans), county, and city designated scenic vistas. The Plan would also have the potential to impact rock outcroppings or other scenic elements such as historic resources within

¹ Table ES-5, Summary of Project Impacts, Mitigation Measures, and Residual Impacts, which is contained in the *Executive Summary* of this 2024 PEIR, and Sections 3.1 through 3.20 of this 2024 PEIR provide a comprehensive evaluation and disclosure of the environmental effects of the Plan, including the level of significance both before and after implementation of mitigation measures.

eligible state scenic highways. Many of the transportation projects and PDAs are in areas with designated scenic resources including historic buildings and scenic rock outcroppings. Therefore, there is potential for the Plan to affect these resources. Implementation of the Plan has the potential to degrade the visual character of project sites, constituting a significant impact. Implementation of the Plan also has the potential to create new substantial sources of light or glare, constituting a significant impact.

- **Agriculture and Forestry Resources:** Implementation of the Plan would have the potential to convert the following to non-agricultural use: Prime Farmland, Farmland of Statewide Importance, Unique Farmland and Farmland of Local Importance. Implementation of the Plan would have the potential to conflict with land managed pursuant to Williamson Act contracts and existing zoning for forest land, timberland, or timberland zoned Timberland Production. Implementation of the Plan would also result in significant impacts with regards to the loss of forest land or conversion of forest land to non-forest use, and with regards to the conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.
- **Air Quality:** Implementation of the Plan will result in impacts to air quality. At the regional level, criteria pollutant emissions would be mostly substantially reduced compared to existing conditions and the region would meet air quality standards. In 2050, when compared to existing conditions, on-road mobile-source particulate matter ten microns or less in diameter (PM10) would increase in Imperial, Riverside, and San Bernardino Counties due to increasing vehicle miles traveled. On-road mobile-source particulate matter emissions would remain the same or decrease from existing conditions in the other counties. Within the South Coast Air Basin (SCAB) (which is likely indicative of the region as a whole), Southern California Air Quality Management District (SCAQMD) indicates that total pollutant emissions are being reduced through at least 2031, except for small increases in SOx and PM2.5. Individual project emissions may result in significant construction and/or operational emissions as compared to thresholds of significance identified by each air district. Over the lifetime of the Plan, implementation of the numerous transportation projects and land use strategies identified in the Plan could expose sensitive receptors to substantial pollutant concentrations.

In accordance with the *Sierra Club v. County of Fresno* (i.e., *Friant Ranch*) decision, when air quality impacts are found to be significant, the health implications of the significant emissions should be disclosed. Modeling and analyzing health consequences requires a substantial amount of data. A detailed health risk assessment of on-road mobile-source emissions was undertaken for the Plan. Connect SoCal 2024 would provide strategies to improve public health and develop walkable and transit friendly communities. The cancer risk adjacent to freeways would be significantly reduced when compared to existing conditions. The Plan would not exacerbate the health risk compared to existing conditions and therefore the impact of on-road emissions is less than significant. As discussed in Section 3.3, *Air Quality*, construction activity would occur adjacent to sensitive receptors. The significant construction emissions identified in Impact AQ-2, could result in an adverse health effects to sensitive receptors. As such, it is likely that extended intense construction activities (e.g., from development projects that involve a high volume of haul trucks) would exceed the health risk significance thresholds due to equipment and truck exhaust emissions. This is considered a significant impact related to substantial pollutant concentrations during construction activities.

- **Biological Resources:** Implementation of the Plan could impact biological resources. Direct impacts that could occur include direct loss of sensitive plant and/or wildlife species resulting from injury, death, or disturbance of these species. Direct impacts may also occur through direct habitat loss and fragmentation during construction, displacement of sensitive species due to construction noise or during operation, accidental introduction of non-native plants by construction equipment or during maintenance and general operation, introduction of new lighting sources, and dust and noise during construction and operation. Implementation of the Plan would also have a substantial adverse effect on riparian habitats and other

sensitive natural communities, as well as on wetlands. Implementation of the Plan would interfere substantially with the movement of native resident or migratory fish, or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites directly, as a result of habitat conversion to accommodate potential projects, or indirectly through interruption of movement or migratory corridors caused by construction and operation of infrastructure for transportation projects and adjacent projects that may result from improved transportation access. Implementation of the Plan has the potential to conflict with local policies and ordinances related to biological resources and a potential to result in conflicts with the provisions of applicable adopted Habitat Conservation Plans (HCPs) and Natural Community Conservation Plans (NCCPs) because some planned transportation and development projects may occur in or adjacent to lands protected under these plans, constituting a significant impact.

- **Cultural Resources:** Implementation of the Plan has the potential to effect historical resources in the SCAG region, including sites listed in the NRHP. Implementation of the Plan has the potential to cause a substantial adverse change in the significance of archaeological resources in the SCAG region, pursuant to CEQA Guidelines Section 15064.5, constituting a significant impact. Implementation of the Plan also has the potential to disturb human remains interred outside of formal cemeteries or those interred in Native American sacred sites, constituting a significant impact.
- **Energy:** Implementation of the Plan has the potential to result in wasteful, inefficient, or unnecessary energy consumption in the SCAG region. Implementation of the Plan has the potential to conflict with or obstruct a state or local plan for renewable energy or energy efficiency, constituting a significant impact.
- **Geology and Soils:** Implementation of the Plan could result in significant impacts regarding fault rupture, ground shaking, landslides, subsidence, lateral spreading, liquefaction and other seismically induced ground failure, and erosion and loss of topsoil. The potential direct impacts on paleontological resources related to implementation of the Plan could result in substantial alteration or removal of a significant paleontological resource from construction activities, and is considered significant.
- **Greenhouse Gas Emissions (GHG):** Implementation of the Plan may result in impacts to GHG emissions. While one of the primary objectives of Connect SoCal 2024 is to reduce GHG emissions, and the Plan has met its regional GHG target pursuant to SB 375, given the regional scale of the analysis, number and variety of transportation projects included in the Plan, the variety of transportation and land use strategies, implementation of the Plan could conflict with AB 32 and SB 32 and other applicable plans, policies or regulations adopted for the purpose of reducing emissions of GHGs. Furthermore, while GHG emissions are anticipated to decrease compared to existing conditions, they are not anticipated to be reduced sufficiently to meet the statewide GHG emissions reduction targets and GHG emissions resulting directly and indirectly from the Plan may result in significant and unavoidable impacts. Therefore, GHG impacts, with the exception of the Plan's compliance with SB 375, are conservatively considered significant and unavoidable.
- **Hazards and Hazardous Materials:** Implementation of the Plan could increase the risk of significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials as well as through reasonably foreseeable upset conditions. Implementation of the Plan may increase the risk of emitting hazardous materials within one-quarter mile of a school. Furthermore, the Plan may result in the development of sites included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The Plan would not in itself result in a safety hazard; however, increased population growth that would occur by 2050 would result in increased air traffic in major commercial airports in Southern California which could result in significant safety impacts. The Plan would result in significant impacts related to emergency access, and implementation or interference with an adopted emergency response plan or emergency evacuation plan.

- **Hydrology and Water Quality:** Implementation of the Plan may result in impacts to water quality due to erosion resulting from exposed soils that may be transported in stormwater runoff. Given that most of the groundwater basins in the Plan area are already in a state of overdraft, future development may result in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted). Implementation of projects under the Plan would occur within watersheds that have impaired water bodies. Many of the impaired water bodies are located near freeway, transit, or rail projects included in the Plan. Several projects may impact water bodies by placing fill material within a stream channel. The Plan has the potential to change existing drainage patterns. Transportation projects such as lane widening projects, new highways, as well as bridges/tunnels, and transportation facilities projects that could cross existing creeks, water crossings, rivers or be expanded into wetland areas may impact water bodies by placing fill material within a stream channel. The Plan has the potential to alter existing drainage patterns. Implementation of the Plan may increase impervious surfaces, which in turn could increase urban runoff if not regulated, resulting in the transport of greater volumes of polluted water into storm drain systems. With regard to flooding, transportation projects and land use development built in low-lying areas or in proximity to waterways and/or dam inundation zones may be subject to flood hazards. An increase in impervious surfaces would increase water runoff and potentially affect groundwater recharge rates and water quality in the basins. Therefore, the Plan may conflict with or obstruct the implementation of a water quality control plan or sustainable groundwater management plan and mitigation measures are required.
- **Land Use:** Implementation of the Plan may result in the physical division of an established community which could occur as a result of real or perceived barriers to pedestrians, bicyclists, and motorists. Short-term construction related impacts could result from disturbances due to construction equipment; these impacts are discussed under other impact categories (e.g., Noise, Aesthetics, and Air Quality). Long-term impacts could result from the completion of new or expanded roadways or transit facilities in existing communities. The Plan was developed with local input through the rigorous Local Data Exchange (LDX) process (67 percent of local jurisdictions provided information) and therefore substantially reflects the development vision and trend of majority of local jurisdictions within the SCAG region. However, because the Plan's planning horizon year is beyond the timeline of many general plans, implementation of the Plan could result in changes to land use patterns as compared to what is currently shown in general plans and other planning documents. Therefore, there is potential for inconsistencies with general plans as well as regional conservation plans.
- **Mineral Resources:** Implementation of the Plan would require substantial amounts of aggregate resources for construction purposes, constituting a significant impact. The Plan has the potential to impact availability of mineral resources if transportation projects and land use development are constructed in mineral resource zones.
- **Noise:** Implementation of the Plan would likely result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies, constituting a significant impact. Implementation of the Plan would generate varying levels of vibration and groundborne noise. The Plan may also result in exposure of persons to or generation of significant noise levels from aircrafts and other airport activity (including ground transportation), constituting a significant impact.
- **Population and Housing:** Implementation of the Plan may result in impacts to population and housing. Because the Plan's land use strategies that focus on PDAs, which are areas within the SCAG region where future growth can be located in order to support the region in meeting mobility and environmental goals, the Plan may result in intensifying growth in these areas of the region. Overall, however, the Plan accommodates

anticipated growth rather than inducing growth. The construction of transportation projects that require expansion of existing or designation of new ROWs may have the potential to result in the displacement of existing people and housing, necessitating the construction of replacement housing, thereby constituting a potentially significant impact.

- **Public Services:** Implementation of the Plan could affect the need for construction of new or physically altered fire protection and emergency response facilities to maintain acceptable service ratios. Although the location and size of such facilities is not yet known, impacts could occur, requiring the consideration of mitigation measures. The Plan could contribute to the need for construction of new or physically altered police facilities in response to and/or to accommodate intensified growth in some areas of the region to maintain acceptable service ratios. The Plan could contribute to substantial adverse physical impacts associated with the construction and subsequent operation of new or physically altered school facilities to maintain acceptable service ratios. The Plan could contribute to substantial adverse physical impacts associated with the construction of library facilities to maintain acceptable service ratios.
- **Recreation:** Implementation of the Plan would have the potential to increase use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration would occur, constituting a potentially significant impact. Implementation of the Plan would result in construction of additional linear and other recreation and park facilities, including a regional greenway network, a regional bikeway network, local bikeway networks, and local parks, the construction of which might have an adverse physical effect on the environment.
- **Transportation:** Implementation of the Plan may result in transportation impacts. As one of the primary goals of the Plan is to reduce VMT, the majority of the projects under the Plan are expected to be consistent with CEQA Guidelines Section 15064.3(b); however, despite the benefits shown by implementing the Plan, the Plan would result in an increase in total regional VMT and may not support achievement of the state's VMT reduction goals which could be inconsistent with CEQA Guidelines Section 15064.3(b).
- **Tribal Cultural Resources:** Implementation of the Plan has the potential to cause a substantial adverse change in the significance of tribal cultural resources defined in Public Resources Code Section 21074, as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe in the SCAG region.
- **Utilities and Service Systems:** Implementation of the Plan may have the potential to generate a substantial amount of solid waste during construction through grading and excavation activities, as well as debris resulting from removal of structures, due to the volume of solid waste debris expected to be generated with implementation of the Plan and lack of identified landfill capacity, impacts would be significant. Implementation of the Plan would potentially involve construction of new storm water drainage facilities and may require construction of new or expanded wastewater treatment facilities. Implementation of the Plan could result in a determination by one or more of the wastewater treatment providers in the region that there is inadequate capacity to serve the future population demand in addition to the provider's existing commitments, resulting in a significant impact. Implementation of the Plan could require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects. The Plan could result in insufficient water supplies from existing entitlements and resources resulting in significant impacts.
- **Wildfire:** Implementation of the Plan may potentially exacerbate wildfire risks and thereby expose people to pollutant concentrations from wildfires or the uncontrolled spread of wildfires, particularly those populations living down wind of the fire. Despite encouraging development in PGAs and discouraging development in

GRRAs, development may continue to occur in urban/wildlands interface areas. Both development as well as necessary infrastructure such as power poles could result in additional wildfire risk.

- **Cumulative Impacts:** Connect SoCal 2024 is a regional-scale Plan comprised of policies and strategies, a regional growth forecast and land use pattern, and individual projects and investments. At this regional scale, a cumulative or related project to the Plan is another regional-scale plan (such as Air Quality Management Plans within the region) and similar regional plans for adjacent regions. Because the Plan, in of itself, would result in significant adverse environmental impacts with respect to all of the environmental topics (except for two specific issues) evaluated in Chapter 3 of this 2024 PEIR, these impacts would add to the environmental impacts of other cumulative or related projects. Mitigation measures that reduce the Plan's impacts would similarly reduce the Plan's contribution to cumulative impacts.

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA Guidelines Section 15126.2(d) states that an EIR must include a discussion of any significant irreversible environmental changes that would be caused by a proposed project. Specifically, Section 15126.2(d) states:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

For purposes of this analysis, the Plan would result in significant irreversible environmental changes if it:

- Involves a large commitment of nonrenewable resources that would commit future generations;
- Results in irreversible damage from environmental accidents; or
- Results in irretrievable commitments of nonrenewable resources to justify current consumption.

5.2.1 LARGE COMMITMENT OF NONRENEWABLE RESOURCES THAT WOULD COMMIT FUTURE GENERATIONS

The Plan would result in the irreversible consumption of nonrenewable resources. The irreversible commitment of limited resources is inherent in any development project or, in the case of the Plan, combined transportation projects and potential development projects from the implementation of Plan policies and strategies. Resources anticipated to be irreversibly committed over the timespan of the construction activities related to the Plan include, but are not limited to, lumber and other related forest products; sand, gravel, and concrete; petrochemicals; construction materials; steel, copper, lead, and other metals; and water.

Growth pattern and land use changes that would result from Plan implementation would likely commit future generations to those uses. Once established, regional development land use patterns can be difficult to change and/or significantly influence without considerable political, social, and economic cost. The forecasted regional development land use pattern reflected in the Plan represents a commitment of these areas to those uses for the foreseeable future. The Plan emphasizes a compact land use pattern integrated with transportation and transit investments, and the result is more efficient use of urban land as well as land at the urban edges or in undeveloped

areas of the region. As a secondary result, per capita use of many nonrenewable resources decreases under this Plan.

However, construction activities related to transportation projects and land use development would nevertheless result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil), natural gas, and gasoline for automobile and construction equipment and aggregate supply used in construction. It should be noted that while such construction activities would continue to contribute to the ongoing consumption of such resources, the amount of fossil fuels consumed on a per-project basis is anticipated to decline given the increasing share of zero-emission and low-emission vehicles and construction equipment that are expected to comprise the fleet mix through 2050.

With respect to operation activities, compliance with all applicable building codes, as well as project-level mitigation measures or project requirements, would help ensure that natural resources are conserved or recycled as feasible. It is also possible that new technologies or systems will emerge, or will become more cost-effective or user-friendly, that will further reduce the region's reliance upon nonrenewable natural resources; however, even with implementation of conservation measures, consumption of natural resources would generally increase with implementation of the Plan.

Furthermore, growth generally results in long-term increase in the demand for electricity and natural gas supplies and distribution. However, implementation of the Plan and other federal and state energy efficiency standards will result in lower per-capita demand by encouraging development in urban areas; encouraging energy conservation in new construction and existing buildings; and reducing the infrastructure energy demands by encouraging alternative transportation such as bicycling, walking, and public transit. Furthermore, the Plan will result in lower per-capita VMT through the horizon year.

The region also has multiple nonrenewable resources including agricultural lands, open space, habitat areas, and mineral resources areas that contain aggregate, oil, and natural gas. Increased levels of development outside of already developed areas could result in permanent loss or other adverse impacts to these resource areas. As discussed above, in general, the Plan seeks to encourage and facilitate growth in PDAs and minimize growth in GRRAs. Nonetheless, the Plan would result in the conversion of nonrenewable resources to urbanized uses.

5.2.2 IRREVERSIBLE DAMAGE FROM ENVIRONMENTAL EVENTS AND ACCIDENTS

Any growth in the region includes the potential for irreversible damage from natural disasters or environmental accidents. For example, greater densities expose more people in the same area to unexpected environmental events such as fire, flood, and/or earthquake which could lead to irreversible damage. In addition, irreversible changes to the physical environment could occur from the accidental release of hazardous materials associated with transport on roadways as more hazardous materials are transported through the region and more people are in closer proximity to hazardous materials threats.

However, this exposure would exist under any growth scenario. Federal and state regulations require the Plan to accommodate expected growth in the region based on market-based forecasts. Connect SoCal 2024 minimizes the footprint of that growth particularly in GRRAs. Implementation of the Plan does not, in and of itself, result in greater potential of irreversible damage from an environmental accident.

5.2.3 IRRETRIEVABLE COMMITMENTS OF NONRENEWABLE RESOURCES TO JUSTIFY CURRENT CONSUMPTION

The region has multiple nonrenewable resources including agricultural lands, open space, habitat areas, and mineral resources areas that contain aggregates and natural gas. Increased levels of development outside of already developed areas could result in permanent loss or other adverse impacts to these resource areas. In addition, increased levels of development throughout the region could result in greater use of nonrenewable resources during construction, including nonrenewable aggregates, or increased use of glass, plastic, and other petroleum products. As discussed above, in general, the Plan seeks to encourage and facilitate growth in PDAs and discourage growth in GRRAs. Nonetheless, the Plan would result in the conversion of nonrenewable resources to urbanized uses.

New growth generally results in additional demand for energy (electricity, natural gas, propane, petroleum, diesel) supplies and distribution. However, the Plan, and other federal and state efforts, will result in lower per-capita demand by encouraging compact development; encouraging energy conservation in new construction and existing buildings; and reducing the infrastructure energy demands by encouraging alternative transportation such as bicycling, walking, and public transit. Furthermore, the Plan will result in lower per-capita VMT through the horizon year (2050). Section 3.8, *Greenhouse Gas Emissions*, of the 2024 PEIR further addresses VMT.

Any growth in the region will result in significant irreversible resource commitments. In evaluating the significance of a project's irreversible resource commitments, CEQA requires a lead agency to consider whether such commitments are "justified" (CEQA Guidelines Section 15126.2(c)). As discussed above, and consistent with the project objectives for the Plan (see Chapter 2, *Project Description*), the Plan is designed to minimize irreversible resource commitments, thus maximizing opportunities for future generations. While the Plan will result in irreversible resource commitments, by encouraging higher density, less-consumptive development, the commitments are justified and beneficial.

5.3 GROWTH-INDUCING IMPACTS

CEQA Guidelines Section 15126.2(e) requires that growth inducing impacts of a proposed project be considered. Growth inducing impacts are characteristics of a project that could directly or indirectly create economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Growth can be induced in a number of ways, including the elimination of obstacles to growth, or by encouraging and/or facilitating other activities that could induce growth. Examples of projects likely to have growth inducing impacts include extensions or expansions of infrastructure systems beyond what is needed to serve project-specific demand, and development of new residential subdivisions or office complexes in areas that are currently only sparsely developed or are undeveloped. In addition, increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. The CEQA Guidelines also state that it must not be assumed that growth in an area is necessarily beneficial, detrimental or of little significance to the environment. Induced growth is considered a significant impact only if it directly or indirectly affects the ability of agencies to provide needed public services or if it can be demonstrated that the potential growth significantly affects the environment, that is, that it would result in construction that would adversely affect the environment.

From the state perspective, the Plan must: identify areas within the region sufficient to house all the projected population for the 20-year plan, an eight-year projection of the regional housing need, and consider the state's housing goals; identify a transportation network to serve the regional transportation needs; and demonstrate how the region can coordinate land use and transportation planning to meet, if feasible, the GHG emissions reduction targets established pursuant to SB 375.

From the federal perspective, the Plan must comply with the federal Clean Air Act and federal laws relating to regional transportation plans (RTPs), which require, among other things, that the plan identify a transportation network that will serve projected land uses in the region. It must also realistically reflect that funding for all modes of transportation is constrained. As a result, the Plan focuses on maximizing the efficiency of existing infrastructure and looking for investments that yield maximum benefits.

As described in Chapter 2, *Project Description*, and Section 3.14, *Population and Housing*, the process for developing the Plan began with the development of a new growth forecast for the region. To develop the growth forecast, SCAG used a method grounded in an economic forecast that considers a wide range of variables affecting the U.S., state, and regional economies. Detailed demographic information is prepared with this economic forecast that includes household types (e.g., age, income, ethnicity, and size) and numbers of households. The growth forecast of projected regional population, employment numbers, and households is then used to calculate the new building square footage required for different segments of the economy (e.g., retail, office, industrial, etc.) and the new housing units required to house the projected population of the region.

In other words, population growth was forecast prior to preparation of the Plan and was used as a basis for the housing and employment growth projections. In this regard, the Connect SoCal 2024 planning process differs from the land use planning processes of local jurisdictions. Local government land use planning may be driven by a vision for a community that is not required to be constrained by specific economic or population forecasts, or by a mandated horizon date.

By law and by design, the Plan provides a coordinated strategy for managing land use patterns and transportation improvements to accommodate projected population growth. The Plan is intended to help shape growth patterns in the region, leading to better efficiency, higher sustainability, and more compact and mixed patterns of land use that are better served by transit and other mode choice options. But, for the reasons summarized above, it would be inaccurate to conclude that the Plan would induce that growth. First, SCAG wields no land use authority; all land use decisions remain with local jurisdictions. Second, as required by law, the Plan identifies areas within the region sufficient to house the population of the region; therefore, it is tailored to meet population growth, not to foster the construction of housing that has the potential to induce growth.

While population growth remains a factor generally outside of local control, cities and counties do control the provision of housing and employment opportunities for that population, and this ultimately determines densities, growth patterns, and resulting efficiencies in the use of land and resources. The Plan reflects a concerted attempt of local governments to influence population growth in a beneficial manner. The Plan represents the coordination of local land use policies with transportation investments that support mixed-use and compact development, transportation options, housing choice and diversity, conservation of agricultural land and natural resources, and use of existing assets. By accommodating efficient, sustainable, compact growth in existing developed areas and limited new areas, and not planning for anything more than nominal or by-right growth in rural areas, regional development pressures are accommodated in a more sustainable pattern, resulting in overall beneficial effects for the region.

As discussed in Section 3.14, *Population and Housing*, the Plan includes policies and strategies that guide new population growth within existing urbanized areas, PDAs, underutilized urban areas, and existing suburban town centers. The Plan would strategically target growth in PDAs and discourage growth in GRRAs. However, the improved accessibility from the Plan's transportation projects, transit investments, and land use strategies could also facilitate population and economic growth in areas of the region that are currently not developed, despite policies designed to limit such development.

The Plan would result in an overall increase in total VMT for all vehicle types which would be expected due to the increase in regional population (see Section 3.17, *Transportation*, of this 2024 PEIR for further discussion). However, the more efficient land use patterns and strategies included in the Plan would result in a decrease in per capita VMT compared to existing conditions and the No Project Alternative (See Chapter 4, *Alternatives*, of this 2024 PEIR for further discussion).

Because several variables influence growth, it is difficult to determine how the Plan alone would affect growth. As described in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, the Plan would affect each environmental issue area directly through implementation of transportation projects and potential development projects. The Plan would indirectly impact growth through the goals, policies and implementation strategies that would result in a more compact development pattern that simultaneously addresses a number of environmental issues than if no Plan were in place. Factors that would potentially induce population growth include roads, highways, freeways, rail, and other transportation improvements that provide access to previously undeveloped areas. High-occupancy vehicle projects would not be expected to induce growth as they are adding to an existing freeway instead of creating a new freeway. The availability of adequate water supplies, the availability of sewage treatment facilities, the availability of developable land, the types and availability of employment opportunities, housing supply and costs, commuting distances, cultural and recreational amenities, climate, and local government growth policies contained in general plans and zoning ordinances would also induce population growth. These are contributing factors to consider when evaluating whether the Plan would, in and of itself, induce population growth, but are not necessarily an indication that the Plan is growth inducing.

Development consistent with the Plan would result in additional commerce, industry, recreation, public services, and infrastructure throughout the region. However, as discussed above, total population is expected to remain the same with or without the Plan. Generally, the Plan accommodates growth in a manner substantially consistent with local general plans, regional values and visions, and state and federal laws. The Plan would provide greater access to more of the region than under existing conditions and under the No Project Alternative due to integrated transportation projects and land use strategies identified in the Plan; however, encouraging growth in the PDAs and minimizing growth in GRRAs could influence the geographic spread of growth. Therefore, in general, the Plan has the potential to influence and possibly induce growth in specific parts of the region (including areas that are partially urbanized already) by providing new or expanded access and by encouraging growth where infrastructure may not already be present or if present is insufficient. However, overall, the Plan is a response to forecast growth and would accommodate and facilitate growth in the region rather than induce growth.

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CHAPTER 6

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CHAPTER 7

Glossary

ABBREVIATION	DEFINITION
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A

AB	Assembly Bill
ACE	Affordable Clean Energy
ACEC	Areas of Critical Environmental Concern
ACM	asbestos-containing material
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AHSC	Affordable Housing and Sustainable Community
ALA	American Library Association
ALS	advanced life support
ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
AMI	area median income
AMR	Annual Monitoring Report
APM	automated people mover
APS	Alternative Planning Strategy
AQMP	Air quality management plan
AR4	Fourth Assessment Report
ARMR	Archaeological Resource Management Report
ARRA	American Recovery and Reinvestment Act 2009
ASCE	American Society of Civil Engineers
ASF	age sensitivity factor
ATAC	Aviation Technical Advisory Committee
ATCM	Airborne Toxic Control Measure
ATP	Active Transportation Plan
AV	autonomous vehicle
AVAQMD	Antelope Valley Air Quality Management District

B

BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BERD	Built Environment Resources Directory
BES	Board of Environmental Safety
BGEPA	federal Bald and Golden Eagle Protection Act
BLM	Bureau of Land Management
BMP	best management practice
BNSF	Burlington Northern/Santa Fe Railway

BR	Biotic Resource
BRT	Bus Rapid Transit
BSER	best system of emission reduction
BTSP	Bicycle Transportation Strategic Plan

C

CAA	federal Clean Air Act
CAAP	Climate Action and Adaptation Plan
CAAQS	California Ambient Air Quality Standards
CalARP	California Accidental Release Prevention
CalEEMod	California Emissions Estimator Model
CalEMA	California Emergency Management Agency
CalEPA	California Environmental Protection Agency
CalGEM	California Geologic Energy Management Division
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CAO	cleanup and abatement order
CAP	climate action plan
CAPCOA	California Air Pollution Officers Association
CAPP	Community Air Protection Program
CARB	California Air Resources Board
CARE	Clean Air Ranger Education
CASQA	California Stormwater Quality Association
CAT	Climate Action Team
CAV	Connected and Automated Vehicle
CBC	California Building Code
CBIA	California Building Industry Association
CBO	Community-Based Organization
CBSP	Commuter Bikeways Strategic Plan
CCA	California Coastal Act
CCAP	Community Climate Action Plan
CCC	California Coastal Commission
CCED	California Conservation Easement Database
CCR	California Code of Regulations
CCUS	carbon capture, utilization, and storage
CCWPP	Countywide Community Wildfire Protection Plan
CDE	California Department of Education
CDFW	California Department of Fish and Wildlife

CDMG	California Division of Mines and Geology
CDO	cease and desist order
CDP	Coastal Development Permit
CDR	carbon dioxide removal
CE	Common Era
CEC	California Energy Commission
CEHC	California Essential Habitat Connectivity Project
CELCP	Coastal and Estuarine Land Conservation Program
CEMS	Continuous Emissions Monitoring Systems
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERP	Community Emissions Reduction Plan
CESA	California Endangered Species Act
CFC	Chlorofluorocarbons
CFCP	California Farmland Conservancy Program
CFGC	California Fish and Game Commission
CFL	compact fluorescent light bulbs
CFR	Code of Federal Regulations
CGC	California Government Code
CGS	California Geological Survey
CH4	Methane
CHE	cargo handling equipment
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CMA	Congestion Management Agency
CMAQ	Congestion Mitigation and Air Quality
CMP	Congestion Management Program
CNDDDB	California Natural Diversity Database
CNEL	Community noise equivalent level
CNPS	California Native Plant Society
CO	Carbon monoxide
CO2	carbon dioxide
CO2e	Carbon dioxide-equivalent
COG	Council of Governments
COPD	chronic obstructive pulmonary disease
CPA	California Protected Area
CPAD	California Protected Areas Database

CPRG	Climate Pollution Reduction Grant
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CSD	community services district
CSI	California Solar Initiative
CTC	County Transportation Commission
CTF	cleaner technologies and fuels
CTIP	Cargo Theft Interdiction Program
CTP	California Transportation Plan
C-TPAT	Customs-Trade Partnership Against Terrorism
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CURB	City Urban Restriction Boundary
CVAG	Coachella Valley Association of Governments
CVC	California Vehicle Code
CWA	Federal Clean Water Act
CWC	California Water Code
CWPO	Community Wildfire Protection Ordinance
CZMA	Coastal Zone Management Act

D

DAC	Disadvantaged Community
DAMP	Drainage Area Management Plan
dB	decibels
dBA	A-weighted decibels
DBR	daily breathing rate
DDW	Division of Drinking Water
DFO	the Disaster Field Office
DHS	U.S. Department of Homeland Security
DMA	Disaster Mitigation Act
DMV	California Department of Motor Vehicles
DNL	day-night average
DOC	California Department of Conservation
DOD	United States Department of Defense
DOF	California Department of Finance
DOSH	Division of Occupational Safety and Health
DPM	diesel particulate matter
DPS	distinct population segment

DRECP	Desert Renewable Energy Conservation Plan
DSCA	Defense Support to Civilian Authorities
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources

E

EAS	Essential Air Service
ECF	Emergency Connectivity Fund
EGU	electric generating unit
EIC	Eastern Information Center
EIR	environmental impact report
EJCP	Environmental Justice Community Partnership
EMFAC	Emission Factor
EMMA	Emergency Managed Mutual Aid
EMS	Emergency Medical Services
EO	Executive Order
EOC	Emergency Operations Center
EOO	Emergency Operations Organization
EPACT	Energy Policy Act
EPCRA	Emergency Planning and Community Right-to-Know Act
EPNdB	effective perceived noise level, in decibels
EPNL	Effective perceived noise level
EQIP	Environmental Quality Incentives Program
ERP	Emergency Response Plan
ESU	evolutionarily significant unit
EU	European Union
EV	electric vehicle
EWRA	Emergency Wetlands Resources Act of 1986

F

FAA	Federal Aviation Administration
FAST	Fixing America's Surface Transportation
FCC	Federal Communications Commission
FCEV	fuel cell electric vehicles
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FESA	federal Endangered Species Act
FFCO2	Fossil fuel carbon dioxide

FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
FIR	Fiscal Impact Report
FIRM	Flood Insurance Rate Map
FLP	Forest Legacy Program
FLPMA	Federal Land Policy and Management Act
FMMP	Farmland Mapping & Monitoring Program
FMP	Flood Management Plan
FPPA	Farmland Protection Policy Act
FPS	fire preemption system
FRA	Federal Responsibility Area
FRPP	Federal Farm and Ranchland Protection Program
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
FUDS	Formerly Used Defense Sites
FWCA	Fish and Wildlife Coordination Act
FY	Fiscal Year

G

GcoM	Global Covenant of Mayors
GGRF	Greenhouse Gas Reduction Fund
GHG	greenhouse gas
GIS	geographic information system
GRRRA	green region resource area
GSA	Groundwater Sustainability Agency
GSE	ground service equipment
GSP	Groundwater Sustainability Plan
GVWR	gross vehicle weight rating
GWh	gigawatt-hours
GWP	Global warming potential

H

H ₂ S	hydrogen sulfide
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HALS	Historic American Landscape Survey
HAP	hazardous air pollutant
HARP	Hot Spots Analysis and Reporting Program

HARP2	Hotspots Analysis and Reporting Program Version 2
HCD	Housing and Community Development
HCFC	Hydrochlorofluorocarbons
HCM	Caltrans Highway Design Manual
HCP	habitat conservation plan
HDDT	heavy-duty diesel truck
HE	high-end
HFC	Hydrofluorocarbons
HFTD	High Fire Threat District
HHRA	Human Health Risk Assessment
HHWE	Household Hazardous Waste Element
HI	Hazard Index
HIN	High Injury Network
HMBP	hazardous materials business plan
HMGP	Hazard Mitigation Grant Program
HMIS	Hazardous Material Identification System
HMMP	Hazardous Material Management Program
HMP	Hazard Mitigation Plan
HNO3	nitric acid
HOT	high-occupancy toll
HOV	high-occupancy vehicle
HPOZ	Historic Preservation Overlay Zone
HQTC	High Quality Transit Corridors
HRA	Health Risk Assessment
HSC	Health and Safety Code
HUC	Hydrologic unit code
HUD	Housing and Urban Development
HUTA	Highway Users Tax Account

I

IBC	International Building Code
ICAPCD	Imperial County Air Pollution Control District
ICSO	Imperial County Sheriff's Office
ICT	innovative clean technology
ICTC	Imperial County Transportation Commission
IEPR	Integrated Energy Policy Report
IEUA	Inland Empire Utility Agency
IFC	International Fire Code

IFL	Important Farmland
IGR	Intergovernmental Review
IJA	Infrastructure Investment and Jobs Act
IOU	investor-owned utilities
IPCC	International Panel on Climate Change
IRP	Integrated Water Resources Plan
ISA	International Society of Arboriculture
ISO	Insurance Services Office
ITA	Indian Trust Asset
ITIP	Interregional Transportation Improvement Program
ITS	intelligent transportation systems
IWSP	Integrated Wildfire Safety Program

J

JFO	Joint Field Office
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K

KCOG	Kern Council of Governments
kW	kilowatts
kWh	kilowatt-hour

L

LA Metro	Los Angeles County Transportation Commission
LACFD	Los Angeles County Fire Department
LACSD	Los Angeles County Sanitation Districts
LAFCO	Local Agency Formation Commission
LAFD	Los Angeles Fire Department
LASD	Los Angeles Sheriff's Department
LATC	Los Angeles Transportation Center
LAUSD	Los Angeles Unified School District
LAX	Los Angeles International Airport
LBP	lead-based paint
LCFS	Low Carbon Fuel Standard
LCP	Local Coastal Plan
LDC	Land Development Category
LDX	local data exchange
LE	low-end
LEV	Low-Emission Vehicle
LID	low-impact development

LIGHTS	Low Impact Green Heavy Transport
LIP	local implementation plan
LIST	Local Information Services Team
LMFP	Last Mile Freight Program
LNG	liquefied natural gas
LOS	Level of Service
LRA	Local Responsibility Area
LRT	Light Rail Transit
LST	localized significance threshold
LTRR	Long-Term Regional Recovery
LUST	leaking underground storage tank

M

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
MAA	Mutual Aid Agreement
MaaS	Mobility as a Service
MAP	million annual passengers
MAP-21	Moving Ahead for Progress in the 21st Century'
MATES-V	Multiple Air Toxics Exposure Study V
MBTA	Migratory Bird Treaty Act of 1918
MCA	mitigation credit agreement
MDAQMD	Mojave Desert Air Quality Management District
MERV	Minimum Efficiency Reporting Value
MERV	Minimum Efficiency Reporting Value
MHHW	Mean Higher High Water
MHMP	Multi-Hazard Mitigation Plan
MLD	Most Likely Descendant
MMCTO _{2e}	million metric tons of CO ₂ equivalent
MMI	Modified Mercalli Intensity
MMPA	Marine Mammal Protection Act of 1972
MMRT	million metric revenue tons
MND	Mitigated Negative Declaration
MOU	Memoranda of Understanding
MPO	metropolitan planning organization
MPRSA	Marine Protection, Research, and Sanctuaries Act of 1972
MRZ	Mineral Resource Zone
MS4	municipal separate storm sewer systems
MSHCP	Multiple Species Habitat Conservation Plan

MSL	mean sea level
MW	megawatt
MWD	Metropolitan Water District of Southern California
MWEL0	California Model Water Efficient Landscape Ordinance

N

NAA	Naples Airport Authority
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NAHC	Native American Heritage Commission
NCCP	natural community conservation plan
NCP	National Contingency Plan
NDFE	Non-Disposal Facility Element
NEPA	National Environmental Policy Act
NET	negative emissions technology
NEV	neighborhood electric vehicle
NF3	Nitrogen Trifluoride
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NGO	nongovernmental organizations
NH3	ammonia
NH4	particulate ammonium
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NIFC	National Interagency Fire Center
NIMS	National Incident Management System
NMA	Neighborhood Mobility Area
NMTP	Non-Motorized Transportation Plan
NO	nitric oxide
NO2	nitrogen dioxide
NO3	nitrate
NOA	Naturally Occurring Asbestos
NOP	Notice of Preparation
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPDWR	National Primary Drinking Water Regulations

NPL	National Priorities List
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRF	National Response Framework
NRHP	National Register of Historic Places
NSPS	New Source Performance Standard
NSR	New Source Review
NTD	National Transit Database
NWP	Nationwide Permit
NZEV	Near-Zero Emission Vehicle

O

OBD	onboard diagnostic system
OCFA	Orange County Fire Authority
OCSD	Orange County Sheriff-Coroner Department
OCTA	Orange County Transportation Authority
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHMS	Office of Hazardous Materials Safety
OHP	Office of Historic Preservation
OHS	Office of Homeland Security
OPR	Governor's Office of Planning and Research
OSHA	Occupational Safety and Health Administration
OSPR	Office of Spill Prevention and Response
OWTS	Onsite Wastewater Treatment System

P

PACT	Pedestrian Target Safeguarding Plan, Active Transportation Plan, Complete Streets Ordinance and Trails Master Plan
Pb	lead
PCB	Polychlorinated biphenyls
PCH	Pacific Coast Highway
PDA	priority development area
PEH	People Experiencing Homelessness
PEIR	Program EIR
PEL	permissible exposure limit
PFC	Perfluorocarbon
PGA	peak ground acceleration
PHEV	plug-in hybrid electric vehicles

PHMSA	Pipeline and Hazardous Materials Safety Administration
PM	Particulate matter
PM10	Respirable particulate matter; particulate matter ten microns or less in diameter
PM2.5	Fine particulate matter
POAQC	Project of Air Quality Concern
POE	Port of Entry
PPD-8	Presidential Policy Directive 8: National Preparedness
PPM	parts per million
PPV	peak particle velocity
PQS	Professional Qualification Standards
PRC	Public Resources Code
PRMP	paleontological resources management plan
PRPA	Paleontological Resources Preservation Act of 2009
PSD	Prevention of Significant Deterioration
PSHA	Probabilistic Seismic Hazard Assessment Map
PSPS	public safety power shutoff

R

RAMP	regional advanced mitigation programs
RAST	Risk Assessment Standalone Tool
RCA	regional conservation assessment
RCFD	Riverside County Fire Department
RCIS	Regional Conservation Investment Strategy
RCOE	Riverside County Office of Education
RCP	Regional Conservation Plan
RCRA	Resource Conservation and Recovery Act of 1976
RCTC	Riverside County Transportation Commission
RDP	Regional Data Platform
REAT	Renewable Energy Action Team
REOC	Southern Regional Emergency Operations Center
RFC	Reference Concentration
RFDP	Regional Forecasted Development Pattern
RFF	Rockets, Fireworks, and Flares
RHA	Rivers and Harbors Act
RHNA	regional housing needs assessment
RMPP	Risk Management and Prevention Program
RMRA	Road Maintenance and Rehabilitation Account
RMS	Root mean square

ROG	reactive organic gas
ROW	right-of-way
RPS	Renewables Portfolio Standard
RTDM	Regional Travel Demand Model
RTIP	Regional Transportation Improvement Program
RTP	regional transportation plan
RTPA	Regional Transportation Planning Agency
RTR	Risk and Technology Review
RUSLE	Revised Universal Soil Loss Equation
RWQCB	Regional Water Quality Control Board

S

SAA	streambed alteration agreement
SAAC	Santa Ana Arts Collective
SAFE	Safer, Affordable, Fuel-Efficient
SANDAG	San Diego Association of Governments
SARA	Superfund Amendment and Reauthorization Act
SB	Senate Bill
SBCAG	Santa Barbara County Association of Governments
SBCFPD	San Bernardino County Fire Protection District
SBCL	San Bernardino County Library System
SBCSD	San Bernardino County Sheriff's Department
SBCTA	San Bernardino County Transportation Commission
SBCU	San Bernardino County Unit
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCAB	South Central Coast Air Basin
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCEA	Sustainable Communities Environmental Assessment
SCIC	South Coastal Information Center
SCRRA	Southern California Regional Rail Authority
SCS	sustainable communities strategy
SDC	seismic design category
SDWA	Safe Drinking Water Act
SEA	Significant Ecological Area
SEATAC	Significant Ecological Areas Technical Advisory Committee

SED	socioeconomic data
SEL	Sound Exposure Level
SEMS	Standard Emergency Management System
SEP	State Emergency Plan
SF6	Sulfur hexafluoride
SGC	Strategic Growth Council
SGCN	Species of Greatest Conservation Need
SGMA	Sustainable Groundwater Management Act
SHMP	State Hazard Mitigation Plan
SHOPP	State Highway Operation and Protection Plan
SHPO	State Historic Preservation Officer
SHSP	statewide Strategic Highway Safety Plan
SI	spark-ignition
SIP	State Implementation Plan
SJVAPCD	San Joaquin Valley Air Pollution Control District
SLC	California State Lands Commission
SLCP	short-lived climate pollutants
SMARA	Surface Mining and Reclamation Act of 1975
SO2	sulfur dioxide
SOAR	Save Our Agricultural Resources
SoCalGas	Southern California Gas Company
SOI	Spheres of Influence
SONGS	San Onofre Nuclear Generating Station
SOV	single occupancy vehicle
SPM	Scenario Planning Model
SR	State Route
SRA	State Responsibility Area
SRRE	Source Reduction and Recycling Element
SRTS	Safe Routes to School
SSAB	Salton Sea Air Basin
SSC	Species of Special Concern
SSEMS	Statewide Standardized Emergency Management System
SSPP	System Safety Program Plan
STA	State Transit Assistance
STBG	Surface Transportation Block Grant
STIP	State Transportation Improvement Program
STORMS	Strategy to Optimize Resource Management of Storm Water
SUSMP	Standard Urban Stormwater Management Plan

SVP	Society of Vertebrate Paleontology
SVRA	State Vehicular Recreation Area
SWAP	state wildlife action plan
SWG	State and Tribal Wildlife Grants
SWMP	stormwater management plan
SWP	State Water Project
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board

T

TAC	Toxic air contaminant
TAF	Terminal Area Forecast
TBACT	Toxics Best Available Control Technology
TCFD	Task Force on Climate-Related Financial Disclosure
TCM	transportation control measure
TCWG	Transportation Conformity Working Group
TDA	Transportation Development Act
TDM	Transportation Demand Management
TDP	Transportation Development Plan
TEU	twenty-foot equivalent unit
TEZ	transportation equity zone
TMA	Transportation Management Area
TMC	Transportation Management Center
TMDL	total maximum daily load
TOC	Transit Oriented Community
TOD	transit-oriented development
TPA	Transit Priority Area
TPP	Transit Priority Project
TPZ	Timberland Production Zone
TRU	transport refrigeration unit
TSA	Transportation Security Administration
TSCA	Toxic Substances Control Act
TSDF	treatment, storage, and disposal facility
TSM	Transportation System Management
TSMO	Transportation System Management and Operations
TWG	Technical Working Group

U

UBC	Uniform Building Code
UCG	Unified Coordination Group
UCMP	University of California Museum of Paleontology
UFC	Uniform Fire Code
UNEP	United Nations Environmental Program
UP	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USC	United States Code
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USDOJ	United States Department of Interior
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFS	United States Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tanks
UWMP	Urban Water Management Plan

V

VCAPCD	Ventura County Air Pollution Control District
VCFD	Ventura County Fire Department
VCFPD	Ventura County Fire Protection District
VCOE	Ventura County Office of Education
VCP	Voluntary cleanup program
VCTC	Ventura County Transportation Commission
VDT	video display terminal
VegCAMP	Vegetation Classification and Mapping Program
VHD	Vehicle hours of delay
VHFHSZ	very high fire hazard severity zone
VHT	vehicle hours of travel
VMT	vehicle miles traveled

W

WAP	watershed action plan
WDR	waste discharge requirement
WEAP	Worker Education and Awareness Program

WfH	Work from Home
WGCEP	Working Group on California Earthquake Probabilities
WJTCA	Western Joshua Tree Conservation Act
WMO	World Meteorological Organization
WRCOG	Western Riverside Council of Governments
WSA	water supply assessment
WSCP	Water Shortage Contingency Plan
WSRA	Wild and Scenic Rivers Act of 1968

Z

ZEV	zero-emissions vehicle
ZNE	zero net energy



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