

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

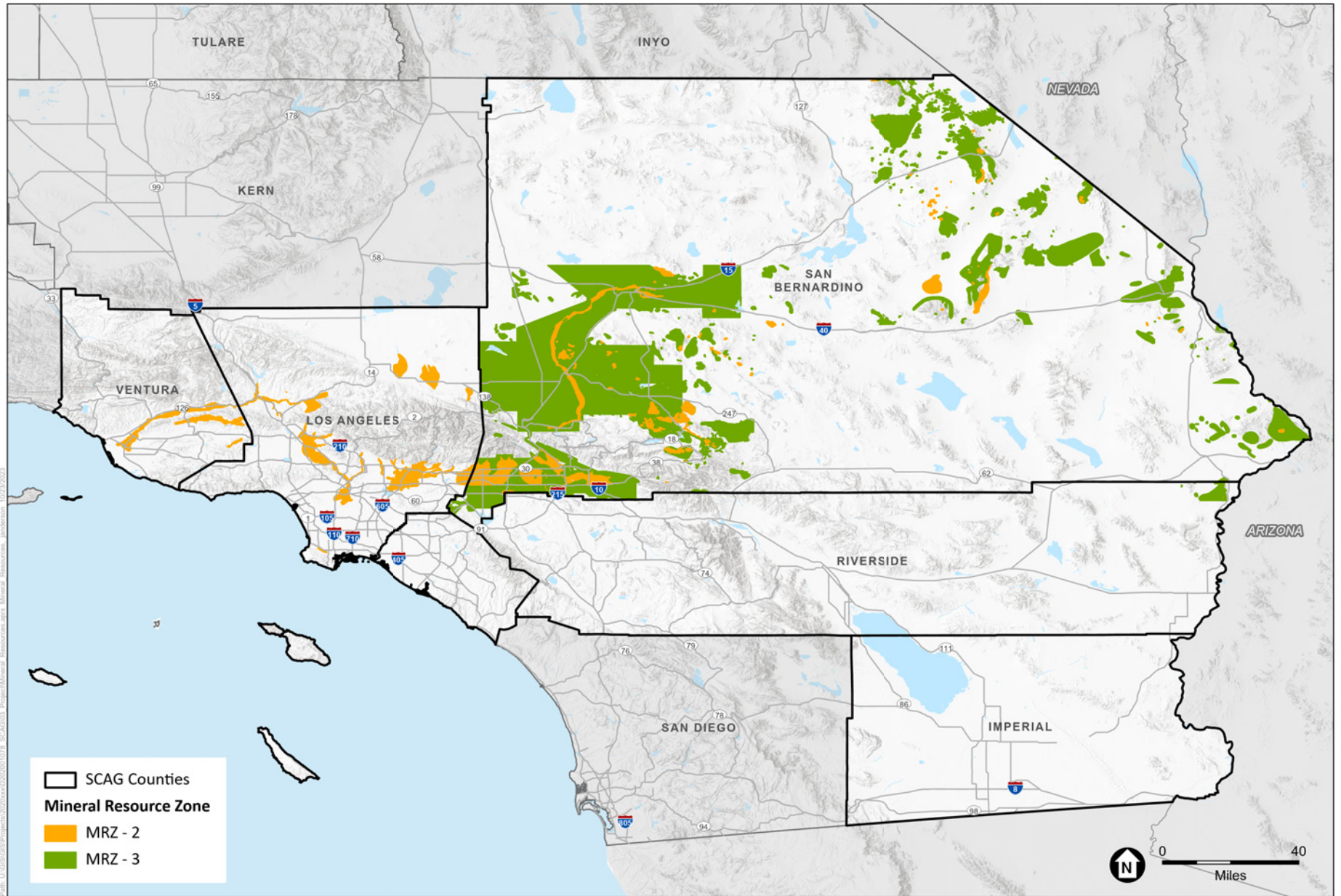
See PMM-MIN-1.

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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.

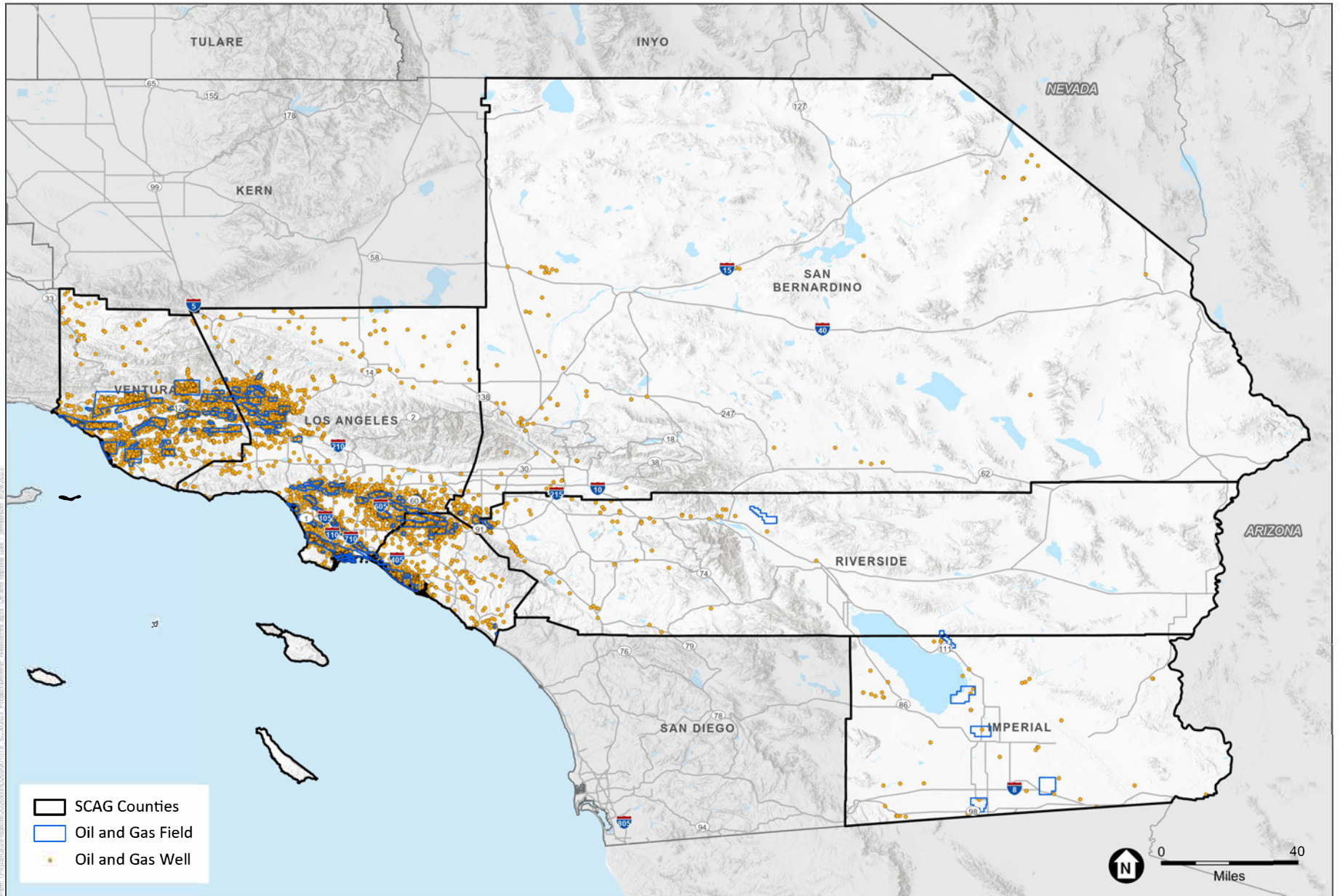


SOURCE: ESA, 2022; Ventura County, 2023; Los Angeles County Planning, 2014; San Bernardino County, 2023; CGS, 2023
 NOTE: No data available for Imperial County, Orange County or Riverside County.

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

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