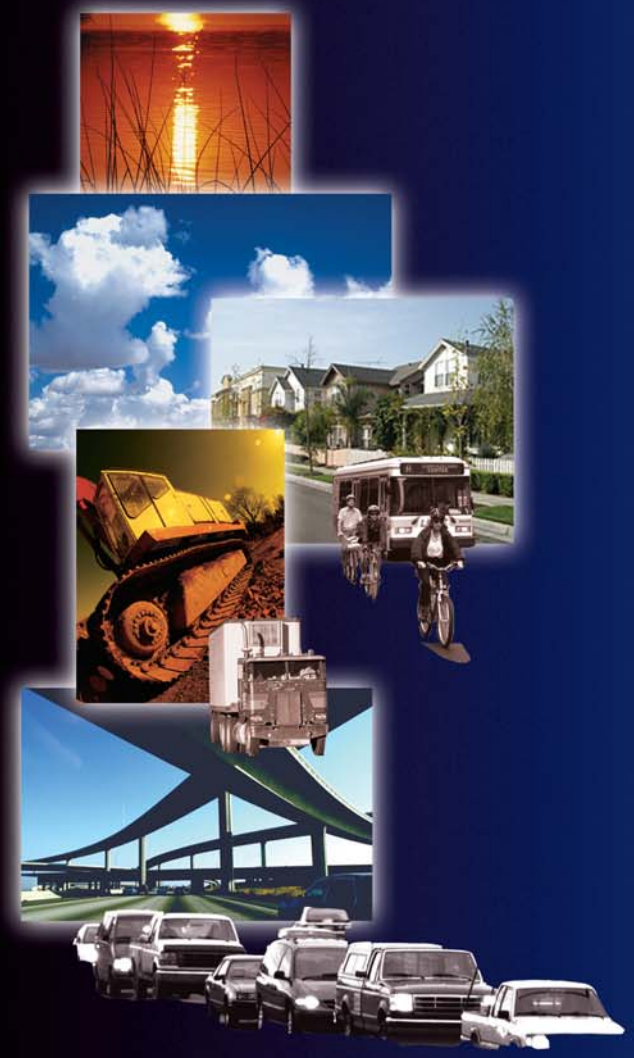

DESTINATION 2030

DRAFT 2004 Regional Transportation Plan Program Environmental Impact Report

SCH # 2003061075

December 2003

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

#1603 PEIR cover

Mission Statement

Leadership

Vision

Progress

Leadership, vision and ***progress*** which promote economic growth, personal well-being, and livable communities for all Southern Californians.

The Association will accomplish this Mission by:

- Developing long-range regional plans and strategies that provide for efficient movement of people, goods and information; enhance economic growth and international trade; and improve the environment and quality of life.
- Providing quality information services and analysis for the region.
- Using an inclusive decision-making process that resolves conflicts and encourages trust.
- Creating an educational and work environment that cultivates creativity, initiative, and opportunity.

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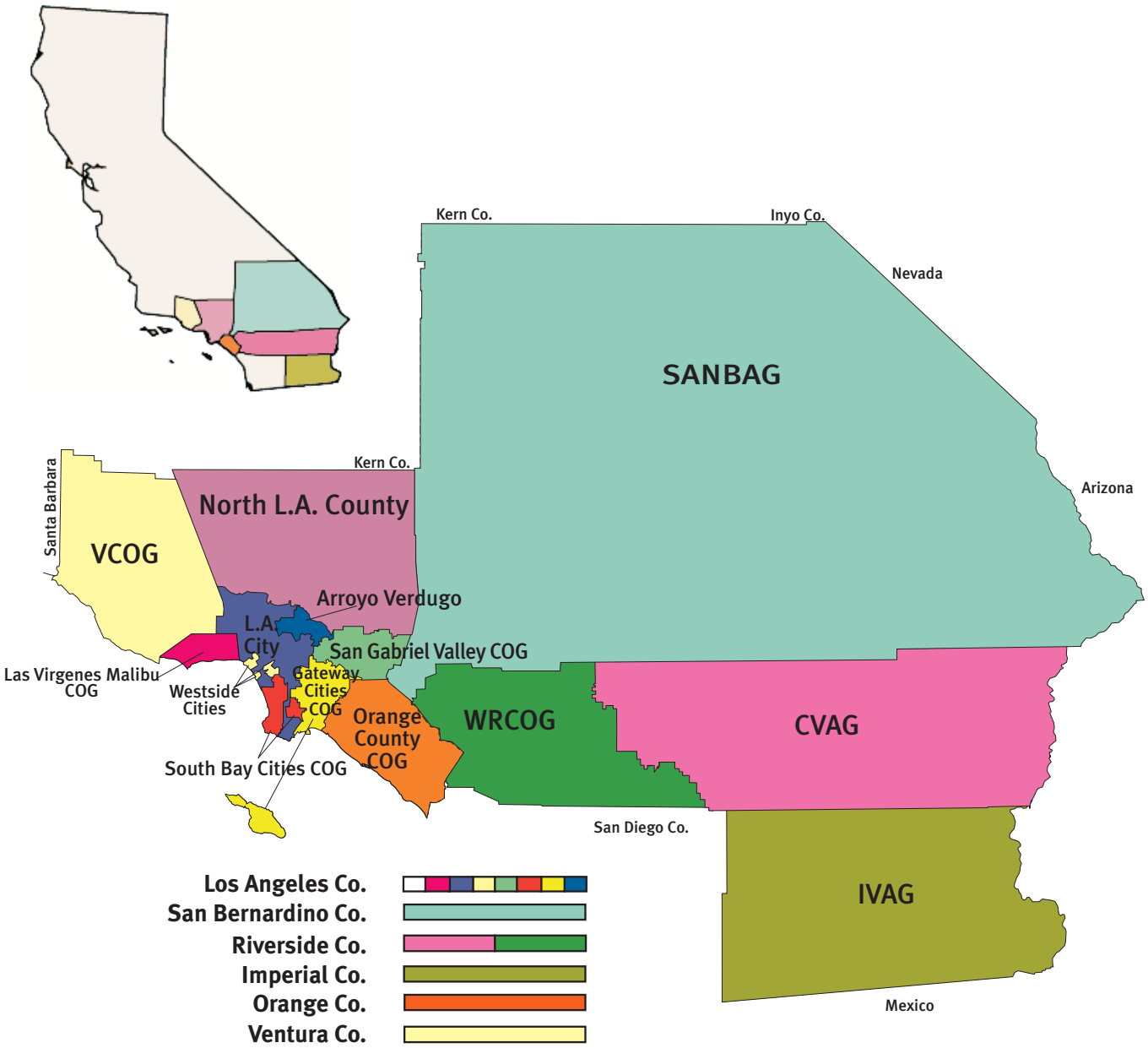
SCAG Planning Region



SCAG is made up of 6 Counties which are divided into 14 subregions.
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SOUTHERN CALIFORNIA
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EXECUTIVE SUMMARY

INTRODUCTION

Purpose of the Environmental Impact Report

In accordance with the California Environmental Quality Act (CEQA) the Southern California Association of Governments (SCAG) has prepared this Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP or the "Plan"). The Plan addresses the transportation needs for the SCAG region through 2030 (including both specific projects and strategies that address transportation and urban form); the purpose of the PEIR is to identify the potentially significant environmental effects of implementing the projects, programs, and policies included in the Plan. The PEIR serves as an informational document to inform decision-makers and the public of the potential environmental consequences of approving the proposed 2004 RTP, and it includes feasible mitigation measures and alternatives designed to help avoid or minimize significant environmental effects. The PEIR includes a description of the existing regional environmental setting, a description of the proposed action (the Plan), a reasonable range of alternatives to the proposed Plan, analysis and identification of significant impacts of the Plan and the alternatives, identification of the environmentally superior alternative, areas of known controversy, mitigation measures, and the expected level of significance after mitigation.

The 2004 RTP PEIR fulfills the requirements of CEQA and provides a useful, regional-scale environmental planning tool that will support subsequent, site-specific analysis, and identifies appropriate measures to minimize adverse environmental effects in the SCAG region.

Environmental Setting

The SCAG region is comprised of six counties: Imperial, Orange, Los Angeles, Riverside, San Bernardino, and Ventura and totals approximately 38,000 square miles in area. 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. 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. This vast area includes millions of acres of open space and recreational land, a rich assemblage of natural resources, a wide variety of elevation, landform, soil and rock types, and climate zones, and a population of 17 million people. A detailed environmental setting is provided in each resource category in Chapter Three of this document.

Proposed Action

SCAG is the federally designated Metropolitan Planning Organization (MPO) under Title 23, United States Code (USC) 134(g)(1), for the six-county region. SCAG is required by state and federal mandates to prepare a RTP every three years.

The 2004 RTP is a long-range regional transportation plan that provides a blueprint to help achieve a coordinated and balanced regional transportation system. Transportation projects in the SCAG region must be consistent with the RTP in order to receive federal funds. The RTP includes: a policy element that includes goals, policies, and performance indicators; an action element that identifies projects, programs, and implementation. In addition the RTP includes a description of regional growth trends to help identify future needs for travel and goods movement.

Policy Element

The goals included in the 2004 RTP are to:

1. Maximize mobility and accessibility for all people and goods in the region;
2. Ensure travel safety and reliability for all people and goods in the region;
3. Preserve and ensure a sustainable regional transportation system;
4. Maximize the productivity of our transportation system;
5. Protect the environment, improve air quality, and promote energy efficiency; and
6. Encourage land use and growth patterns that complement our transportation investments.

The policies in the 2004 RTP include:

1. Transportation investments shall be based on SCAG's adopted Regional Performance indicators.
2. Ensuring safety, adequate maintenance, and efficiency of operations on the existing multi-modal transportation system will meet RTP priorities and will be balanced against the need for system expansion investments.
3. RTP land use and growth strategies that differ from currently expected trends will require a collaborative implementation program that identifies required actions and policies by all affected agencies and subregions.
4. High Occupancy Vehicle (HOV) gap closures that significantly increase transit and rideshare usage will be supported and encouraged, subject to Policy #1.

Performance indicators in the 2004 RTP include mobility, accessibility, reliability, safety, cost effectiveness, productivity, sustainability, preservation, environmental quality, and environmental justice.

Action Element

The programs, projects, and implementation actions of the proposed RTP focus on system management, transportation demand management, strategic system expansion, and the land use-transportation connection.

System Management

A key component of System Management is protecting the investment in the current transportation infrastructure. The 2004 RTP sets aside over $6 billion of additional funds for infrastructure preservation and a total budget for Operations and Maintenance of approximately $83 billion. System management includes operational strategies (getting the most out of the existing system) and the Congestion Management System (CMS).

Transportation Demand Management

Transportation Demand Management (TDM) is the all-inclusive term given to a variety of measures used to improve the efficiency of the existing transportation system by managing travel demand. TDM strategies encourage the use of alternatives to the single occupant vehicle such as carpools, vanpools, bus, rail, bikes, and walking. Alternative work-hour programs, such as compressed workweek programs, flextime and work-at-home (telework and home-based businesses) are also TDM strategies, as are parking management tactics, such as preferential parking for carpools and parking pricing.

Strategic System Expansion / Capital Investments

Highway and Arterial Investments

The 2004 RTP contains a total of approximately $39 billion in public funding for proposed, committed, and programmed highway and arterial projects. This figure includes all capital improvements for the highway and arterial network, including mixed-flow lanes, HOV lanes, interchanges, truck climbing lanes, and grade crossings, but it does not include maintenance.

Goods Movement

The focus of the goods movement improvements in the 2004 RTP is on truck traffic and freight rail. The regional transportation system will be challenged to accommodate the projected doubling of truck trips by 2030. The 2004 RTP acknowledges the need for strategies that will accommodate this future growth in truck traffic. While specific strategies and alignment determinations need further evaluation and consensus building, the Plan identifies corridor improvement needs for a number of corridors. The Plan also proposes adding a number of truck climbing lane improvements to the Region's highway system. The Regional Rail Capacity Improvement Program proposes rail capacity improvements that include a total investment of $3.4 billion in Southern California: $1.2 billion for railroad infrastructure projects and approximately $2.2 billion in grade separation projects.

Maglev System

The Maglev system is the name for an elevated monorail using advanced magnetic levitation technology to move people and goods at a very high speed (up to 310 miles per hour (mph)), with a high degree of safety, comfort, and reliability. For the past four years, SCAG has been studying the feasibility of developing four Maglev corridors in the region:

- Los Angeles Airport (LAX) to March Inland Port in Riverside
- LAX to Palmdale
- Los Angeles Union Passenger Terminal (LAUPT) to Orange County (Anaheim)
- LAX to Orange County (Irvine Transportation Center).

If implemented as scheduled, the proposed system would include approximately 275 miles of Maglev corridors in the SCAG Region by 2030 that could move up to 500,000 riders a day.

Marine Ports

The ports of Los Angeles, Long Beach and Port Hueneme are planning to invest $6 billion over the next 25 years in infrastructure development programs. These efforts will include widening arterial streets, upgrading freeway ramps, separating railroad grade crossings, expanding rail yards, and adding intelligent transportation systems (ITS) to improve ground access management.

Inland Port

The 2004 RTP identifies an inland port that would serve as a cargo facilitation center where a number of import, export, manufacture, packing, warehousing, forwarding, customs, and other activities (with possible Foreign Trade Zone and/or Enterprise Zone inclusion) could take place in close proximity or even at the same site.

Aviation

SCAG has developed a new aviation demand forecast and plan that maximizes airport efficiency on a regional scale. This new aviation plan, termed the “Preferred Aviation Plan,” is a decentralized airport demand strategy to serve a forecasted regional demand of 170 million passengers in 2030, which results in an estimated economic benefit of $18 billion and 131,000 jobs over a constrained system.

Public Transportation System

The 2004 RTP contains a total of approximately $25 billion in public funding for proposed, committed, and programmed transit projects, not including operation and maintenance. The goals of public transportation services are to ensure mobility for people without access to

automobiles and to provide attractive alternatives for drive-alone motorists or discretionary riders. Strategies include a significant increase in service availability, major expansion in the use of bus rapid transit, and some re-structuring of service to ensure efficient utilization of available capacity. New rapid bus lines will be implemented on heavily-traveled corridors and many bus lines will be added or restructured to feed into the existing and proposed urban and commuter rail system.

The 2004 RTP calls for increased and better coordination between transit and land-use planning to increase ridership, reduce congestion, and improve air quality. The regional transit program calls for the local and regional transit and planning agencies to promote transit-oriented development cooperatively along the major transit corridors. The 2004 RTP also supports development of a flexible transit system enabling a strong transit linkage to transit activity centers.

Land Use-Transportation Connection

The following tenets were developed through SCAG's Growth Visioning process to serve as the foundation for the land use strategies in the 2004 RTP:

- Using in-fill where appropriate to revitalize underutilized development sites
- Focusing growth along transit corridors and nodes to utilize available capacity
- Providing housing opportunities near job centers, and job opportunities, when appropriate, in housing-rich communities
- Providing housing opportunities to match changing demographics
- Ensuring adequate access to open space
- Changing land use to correspond to the implementation of a decentralized regional aviation strategy and its consequent short- and long-term job creation
- Changing land use to correspond to the implementation of regionally significant major transportation projects and their consequent short- and long-term job creation
- Incorporating the local input and feedback on future growth received from 90 percent of the jurisdictions in the SCAG Region.

Proposed Plan and RTP EIR Alternatives

As stated above, the PEIR for the 2004 RTP is required to evaluate a reasonable range of alternatives to the proposed 2004 RTP. The alternatives evaluated for the RTP EIR include:

The **Proposed Plan**, which includes all of the elements summarized above, contains transportation/urban-form strategies that encourage compact growth, increased jobs/housing balance, and centers-based development, where feasible, in all parts of the region.

The **No Project** Alternative includes only those programmed transportation projects that received federal environmental clearance by December 2002. These reasonably foreseeable projects fulfill the definition of the mandated CEQA No Project Alternative.

The **2001 RTP Modified** Alternative is an update of the adopted 2001 RTP to reflect the most recent growth estimates and transportation planning decisions and assumptions. This Alternative does not include urban-form strategies.

The **PILUT[1] 1 (Infill)** Alternative includes transportation investments and land use strategies that encourage a substantial portion of future growth to be concentrated in existing urban centers through infill and redevelopment. This alternative has been designed to reduce consumption of open space and habitat. Impacts of the PILUT 1 Alternative are less adverse than the Plan for each resource category, and, overall, the PILUT 1 alternative is the environmentally superior alternative.

The **PILUT 2 (Fifth Ring)** Alternative includes transportation investments and land use/transportation strategies that encourage growth toward a more decentralized urban form and an improvement in the jobs/housing balance in the outlying areas of the region. Specifically, PILUT 2 focuses on improving and expanding infrastructure to efficiently utilize undeveloped land on the outer edges of the urbanized area.

Table ES-1 below contains a summary of the environmental impacts associated with implementation of the 2004 RTP and alternatives, proposed mitigation measures, the level of impacts with implementation of the mitigation measures.

Each alternative maintains a constant population total in 2030. The year 2030 growth projection for each Alternative differs from one another in two ways: 1) numbers of households and jobs and/or 2) distribution of people, households and jobs. The alternatives differ in terms of numbers of households and jobs because different investments in the alternatives would be expected to stimulate different levels of job creation and household development. The alternatives differ in terms of the distribution because the different transportation investments and urban form strategies would be expected to support different regional distributions of population, households, and employment.

Analytical Approach

The focus of the environmental analysis in this PEIR is on the potential regional-scale and cumulative impacts of implementation of the Plan and the alternatives. The long-range planning horizon of more than 25 years necessitates that many of the highway, arterial, goods movement, and transit projects included in the Plan and the alternatives are identified at the conceptual level, and this document addresses environmental impacts to the level that they can be assessed without undue speculation. This PEIR acknowledges this uncertainty and incorporates these

[1] PILUT is Planning for Integrated Land Use and Transportation.

realities into the methodology to evaluate the environmental effects of the 2004 RTP, given its long-term planning horizon.

The proposed Plan and the alternatives were evaluated at an equal level of detail. Multiple methods, including spatial analysis, transportation, noise and air quality simulation modeling, and other quantitative, ordinal, and qualitative techniques, were employed to identify the potential environmental effects of implementing the Plan and the alternatives. Spatial analysis using Geographic Information Systems (GIS) was employed to evaluate the potential effects of the major roadway, rail, and transit projects on numerous resource categories, such as land use, biological, cultural and water resources. Sophisticated transportation, noise and air quality simulation models were used to estimate the transportation and air quality impacts. Project and policy elements of the Plan and alternatives were incorporated into the modeling analysis and into the socioeconomics projections. All of the techniques used to evaluate the potential environmental effects of the Plan and the alternatives are fully described in each resource section in Chapter Three of this document.

Baseline for Determining Significance

The PEIR must identify significant impacts that would be expected to result from implementation of the 2004 RTP. Significant impacts are defined as “a substantial or potentially substantial, adverse change in the environment” (Public Resource Code § 21068). Significant impacts must be determined by applying explicit significance criteria to compare the future Plan conditions to the existing environmental setting (CEQA Guidelines Section 15126.2(a)), and the effect is determined to be either beneficial, less than significant, significant or to have no impact compared to current conditions. The criteria for determining significance are included in each resource section in Chapter Three of this document.

Comparison with the No Project

It is important to emphasize that urbanization in the SCAG region will increase substantially by 2030, with or without implementation of the 2004 RTP, and the CEQA-required environmental baseline of current conditions means that the impact assessment for many of the resources categories is cumulative in nature. Therefore, the analysis for each resource category also includes a direct comparison between the expected future conditions with the proposed Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the effects of implementing the 2004 RTP. A direct comparison between the proposed Plan and the No Project Alternative is included in each resource section of Chapter Three of this document.

SIGNIFICANT IMPACTS, MITIGATION MEASURES, AND MONITORING

As stated above CEQA requires identification of significant impacts and mitigation measures to avoid or reduce significant impacts. Table ES-1 below contains a summary of the environmental impacts associated with implementation of the 2004 RTP and RTP EIR Alternatives, proposed mitigation measures, and the level of impacts with implementation of the mitigation measures.

The table illustrates that substantial or potentially substantial adverse effects, compared to current conditions, would be expected to occur to:

1) Land Use;
2) Population, Employment, and Housing;
3) Transportation;
4) Air Quality;
5) Noise;
6) Visual/Aesthetic Resources;
7) Biological Resources;
8) Cultural Resources;
9) Geology;
10) Hazardous Materials;
11) Energy;
12) Water Resources; and
13) Public Service and Utilities.

The proposed mitigation measures included in Table ES-1 can be incorporated as policies into the Final 2004 RTP and the updated Regional Comprehensive Plan, as appropriate and feasible. This integration of mitigation with regional plans would help ensure that feasible measures are implemented at the project-level (Public Resource Code § 21081.6). The project proponent or local jurisdiction shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process (in which all regionally significant projects, plans, and programs are reviewed for consistency with regional plans and policies).

Areas of Known Controversy

Areas of known controversy about the 2004 RTP include concerns raised about growth projections, implementation of urban form strategies and mitigation measures, water supply reliability, aviation elements, the transportation funding strategy, and the potential alignments for capacity enhancement projects for travel and goods movement projects. The PILUT 2 (Fifth Ring) Alternative has sparked conflict over growth patterns that facilitate growth in the High Desert and northern LA County.

Acronym List

CEQA	California Environmental Quality Act
CMS	Congestion Management System
GIS	Geographic Information Systems
HOV	High Occupancy Vehicle
ITS	Intelligent Transportation Systems
LAUPT	Los Angeles Union Passenger Terminal
LAX	Los Angeles Airport
Maglev	Magnetic Levitation Train
MPH	Miles per Hour
MPO	Metropolitan Planning Organization
PEIR	Program Environmental Impact Report
PILUT	Planning for Integrated Land Use and Transportation
Plan	2004 Regional Transportation Plan
RTP	2004 Regional Transportation Plan
SCAG	Southern California Association of Governments
TDM	Transportation Demand Management
USC	United States Code

Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
As noted in Chapter 3.0, and the Mitigation, Monitoring and Reporting Program, all mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through the Intergovernmental Review Process.						
3.1 Land Use						
Impact 3.1-1: Implementation of the proposed 2004 RTP transportation projects would result in substantial disturbance and/or loss of prime farmlands or grazing lands throughout the six-county SCAG region.	**MM 3.1-1a:** Individual projects must be consistent with Federal, State, and local policies that preserve agricultural lands and support the economic viability of agricultural activities, as well as policies that provide compensation for property owners if preservation is not feasible. **MM 3.1-1b:** For projects impacting agricultural land, project implementation agencies shall contact the California Department of Conservation and each county's Agricultural Commissioner's office to identify the location of prime farmlands and lands that support crops considered valuable to the local or regional economy. Impacts to such lands shall be evaluated in project-specific environmental documents. The analysis shall use the land evaluation and site assessment (LESA) analysis method (CEQA Guidelines §21095), as appropriate. Mitigation measures may include conservation easements or the payment of in-lieu fees. **MM 3.1-1c:** Project implementation agencies shall consider corridor realignment, buffer zones and setbacks, and berms and fencing where feasible, to avoid agricultural lands and to reduce conflicts between transportation uses and agricultural lands. **MM 3.1-1d:** Prior to final approval of each project and when feasible and prudent, the implementing agency shall establish conservation easement programs to mitigate impacts to prime farmland. **MM 3.1-1e:** Prior to final approval of each project, the implementing agency shall to the extent practical and feasible, avoid impacts to prime farmlands or farmlands that support crops considered valuable to the local or regional economy. **MM 3.1-1f:** Prior to final approval of each project, the implementing agency shall encourage enrollments of agricultural lands for counties that have Williamson Act programs, where applicable.	This impact would remain **significant** because it is anticipated that substantial loss and disturbance of agricultural land would occur.	S (-)	S (=)	S (-)	S (+)
Impact 3.1-2: Implementation of the projects included in the 2004 RTP would result in a substantial loss or disturbance of existing open space and recreation lands.	**MM 3.1-2a:** Project implementation agencies shall ensure that projects are consistent with Federal, State, and local plans that preserve open space. **MM 3.1-2b:** Project implementation agencies shall consider corridor realignment, buffer zones and setbacks, and berms and fencing where feasible, to avoid open space and recreation land and to reduce conflicts between transportation uses and open space and recreation lands.	Implementation of the 2004 RTP would result in a potentially substantial loss and/or disturbance of open space and	S (-)	S (=)	S (-)	S (=)

Key:
+ Greater Adverse Impact than Proposed 2004 RTP
= Similar Impact as Proposed 2004 RTP
- Less Adverse Impact than Proposed 2004 RTP

B = Beneficial
LS = Less-than-Significant
S = Significant

Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
	MM 3.1-2c: Project implementation agencies shall identify open space areas that could be preserved and shall include mitigation measures (such as dedication or payment of in-lieu fees) for the loss of open space. **MM 3.1-2d:** Prior to final approval of each project, the implementing agency shall conduct the appropriate project-specific environmental review, including consideration of loss of open space. Potential significant impacts to open space shall be mitigated, as feasible. The project implementation agencies or local jurisdiction shall be responsible for ensuring adherence to the mitigation measures prior to construction. **MM 3.1-2e:** For projects that require approval or funding by the USDOT, project implementation agencies shall comply with Section 4(f) of the USDOT Act. **MM 3.1-2f:** Future impacts to open space and recreation lands shall be avoided through cooperation, information sharing, and program development during the update of the Open Space and Conservation chapter of SCAG's RCPG and through SCAG's Energy and Environment Committee.	recreation lands. This impact would remain **significant**.				
Impact 3.1-3: The proposed 2004 RTP contains transportation projects and strategies to distribute the future growth in the region. These projects and strategies potentially would result in inconsistencies with currently applicable adopted local land use plans and policies.	**MM 3.1-3a:** SCAG shall encourage through regional policy comments that cities and counties in the region provide SCAG with electronic versions of their most recent general plan and any updates as they are produced. **MM 3.1-3b:** SCAG shall encourage through regional policy comments that cities and counties update their general plans at least every ten years, as recommended by the Governor's Office of Planning and Research. **MM 3.1-3c:** SCAG shall work with its member cities and counties to ensure that transportation projects and growth are consistent with the RTP and general plans. **MM 3.1-3d:** Planning is an iterative process and SCAG is a consensus building organization. SCAG shall work with cities and counties to ensure that general plans reflect RTP policies. SCAG will work to build consensus on how to address inconsistencies between general plans and RTP policies.	In some instances, currently adopted general plans will need to be updated, especially general plans that are known to be out of date. Thus, the impact would remain potentially **significant**.	LS	S (-)	S (+)	S (+)
Cumulative Impact 3.1-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to land use and would change the intensity of land	Mitigation Measures **3.1-1a through 3.1-1f, 3.1-2a through 3.1-2e, and 3.1-3a through 3.1-3d** would be applied to mitigate this cumulative impact in addition to the following measure. **MM 3.1-4a:** SCAG's Growth Visioning program and the forthcoming Regional Growth Vision will be used to build a consensus in the region to support changes in land use to accommodate future population growth while maintaining the quality of life in the region.	In order to accommodate six million more people as projected by 2030, the region will need to change land uses and increase the intensity of some	S (=)	S (+)	S (-)	S (-)

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Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
use in some areas.		existing land use. The cumulative impact would remain **significant**.				
3.2 Population, Housing and Employment						
Impact 3.2-1: Implementation of the 2004 RTP would facilitate substantial population growth to certain vacant areas of the region.	**MM 3.2-1a:** SCAG shall work with its member agencies to implement growth strategies to create an urban form designed to utilize the existing transportation networks and the transportation improvements contained in the 2004 RTP, enhancing mobility and reducing land consumption.	The policies included in the Plan seek to direct growth in a way that is efficient for both mobility and land consumption. However, implementation of the Plan would help distribute growth to certain vacant areas of the region. Thus, the impact would remain **significant**.	LS	S (=)	S (-)	S (-)
Impact 3.2-2: Implementation of the 2004 RTP projects would require the acquisition of rights-of-way that displace a substantial number of existing homes and businesses.	Mitigation measures **MM 3.1-3a through MM 3.1-3d** would be applied to mitigate this impact in addition to the following measures. **MM 3.2-2a:** For projects with the potential to displace homes and/or businesses, project implementation agencies shall evaluate alternate route alignments and transportation facilities that minimize the displacement of homes and businesses. An iterative design and impact analysis would help where impacts to homes or businesses are involved. Potential impacts shall be minimized to the extent feasible. If possible, existing rights-of-way should be used. **MM 3.2-2b:** Project implementation agencies shall identify businesses and residences to be displaced. As required by law, relocation assistance shall be provided to displaced residents and businesses, in accordance with the federal Uniform Relocation and Real Property Acquisition Policies Act of 1970 and the State of California Relocation Assistance Act, as well as any applicable City, County, and Port policies. **MM 3.2-2c:** Project implementation agencies shall develop a construction	Not all of the projects in the 2004 RTP will be able to be built in existing rights-of-way. A substantial number of businesses and residences likely would be displaced through the development of projects in the 2004 RTP. The impact would remain **significant**.	S (-)	S (=)	S (-)	S (+)

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Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
	schedule that minimizes potential neighborhood deterioration from protracted waiting periods between right-of-way acquisition and construction.					
Impact 3.2-3: The 2004 RTP has the potential to disrupt or divide a community by separating community facilities, restricting community access, and eliminating community amenities.	Mitigation measures **MM 3.1-3a through MM 3.1-3d** would be applied to mitigate this impact in addition to the following measures. **MM 3.2-3a:** Project implementation agencies shall design new transportation facilities that consider access to existing community facilities, as feasible. During the design phase of the project, community amenities and facilities shall be identified and considered in the design of the project. **MM 3.2-3b:** Project implementation agencies shall design roadway improvements that minimize barriers to pedestrians and bicyclists, as feasible. During the design phase, pedestrian and bicycle routes shall be determined that permit connections to nearby community facilities.	The 2004 RTP proposes projects that have the potential to disrupt or divide communities and, considering the scale and number of these projects, impacts cannot be mitigated to a less than significant level. The impact would remain **significant**.	S (-)	S (=)	S (-)	S (+)
Cumulative Impact 3.2-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to currently vacant natural land.	Mitigation measure **MM 3.1-3a through MM 3.1-3d** and **3.2-1a** would be applied to mitigate this impact in addition to the following measure. **MM 3.2-4a:** SCAG's Growth Visioning program and the forthcoming Regional Growth Vision shall be used to work toward building a consensus in the region to support changes in land use to accommodate future population growth while maintaining the quality of life in the region.	The accessibility afforded by the 2004 RTP, and the expected shifts in population, households, and employment associated with the mobility benefits would change the growth patterns in the region. The impact would remain **significant**.	S (=)	S (+)	S (-)	S (-)
3.3 <u>Transportation</u>						
Impact 3.3-1: In 2030 there would be substantially more total daily Vehicle Miles of Travel (VMT) than the current daily VMT. Implementation of the 2004 RTP would contribute to this increase.	Measures intended to reduce vehicle miles traveled are part of the 2004 RTP. These include: increasing rideshare and work-at-home opportunities to reduce demand on the transportation system, investments in non-motorized transportation and maximizing the benefits of the land use-transportation connection and other Travel Demand Management measures (as described in the Project Description in Section 2.0). **MM 3.3-1a:** Beyond the currently financially and institutionally feasible	Implementation of measures beyond those institutionally and economically feasible measures identified in the 2004 RTP would be	S (+)	S (+)	S (-)	S (-)

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Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
	measures included in the 2004 RTP, SCAG shall identify further reduction in VMT could be obtained through additional car-sharing programs, additional vanpools, additional bicycle programs, and implementation of a universal employee transit pass program.	expected to reduce VMT, however even with this mitigation, the 2030 VMT would be substantially greater than the existing VMT. Therefore, the increase in VMT would remain a **significant impact.**				
Impact 3.3-2: In 2030 there would be substantially higher average delay than the current condition. Implementation of the 2004 RTP would contribute to this increase.	Measures intended to reduce delay are part of the 2004 RTP. These include: system management, increasing rideshare and work-at-home opportunities to reduce demand on the transportation system, investments in non-motorized transportation, maximizing the benefits of the land use-transportation connection and key transportation investments targeted to reduce delay (as described in the Project Description in Section 2.0). Further reduction in delay would be obtained through the measures described for **Impact 3.3-1**.	Implementation of measures beyond those institutionally and economically feasible measures identified in the 2004 RTP would be expected to reduce delay for all vehicles, however even with this mitigation, the 2030 total delay would be substantially greater than the existing delay. Therefore, the increase in total delay would remain a **significant impact.**	S (+)	S (+)	S (-)	S (+)
Impact 3.3-3: In 2030 there would be substantially greater average delay for heavy-duty truck trips than the current condition. Implementation of the 2004 RTP would contribute to this increase.	Mitigation measures intended to reduce daily heavy-duty truck vehicle hours of delay are part of the 2004 RTP. These include: goods movement capacity enhancements, system management, increasing rideshare and work-at-home opportunities to reduce demand on the transportation system, investments in non-motorized transportation, maximizing the benefits of the land use-transportation connection and key transportation investments targeted to reduce heavy-duty truck delay (as described in the Project Description in Section 2.0). Further reduction in delay for *all* vehicles would be obtained through the implementation of the measures described for	Implementation of measures beyond those institutionally and economically feasible measures identified in the 2004 RTP would be expected to reduce delay for heavy	S (+)	S (+)	S (-)	S (-)

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Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
	Impact 3.3-1. The following mitigation measure could decrease delay for heavy-duty trucks. **MM 3.3-3a:** The region's ports should extend operation hours in order to reduce heavy-duty truck traffic during peak periods, thereby reducing the VHT these trucks spend in delay.	trucks, however even with this mitigation, the 2030 heavy-duty truck delay would be substantially greater than the existing delay. Therefore, the increase in heavy-duty delay would remain a **significant impact.**				
Impact 3.3-4: Implementation of the 2004 RTP would contribute to an increase in the percent of work opportunities within 45 minutes travel time by personal vehicle or by transit in 2030, relative to the existing condition.	The impact would be beneficial. No mitigation measures are required.	The increase, between 2000 and 2030, in the percent of work trips accessible within 45 minutes travel time by auto or transit would be a **beneficial impact**.	S	LS	B	B
Impact 3.3-5: Implementation of the 2004 RTP would contribute to a lower system-wide fatality accident rate for all travel modes in 2030 compared to the existing condition.	The impact would be beneficial. No mitigation measures are required.	The decrease, between 2000 and 2030, of the system-wide fatality accident rate would be a **beneficial impact**.	LS	B	B	B
Impact 3.3-6: Implementation of the 2004 RTP would contribute to a lower system-wide injury accident rate for all travel modes in 2030 compared to the existing condition.	The impact is beneficial. No mitigation measures are required.	The decrease, between 2000 and 2030, of the system-wide injury rate is a **beneficial impact**.	LS	B	B	B
Cumulative Impact 3.3-7: Implementation of the 2004 RTP would contribute to a cumulatively considerable amount of transportation impacts, such as VMT and all-vehicle VHT in delay, to counties outside of the SCAG region.	The projects and measures designed to minimize VHT and VMT that are included in the 2004 RTP, and Mitigation Measure 3.3-1a would minimize this effect.	The regional contribution would remain **significant**.	S (+)	S (+)	S (-)	S (+)

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IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
3.4 Air Quality						
Impact 3.4-1: Long-term (Operational) Regional Impacts **Impact 3.4-1a:** Under the Plan, PM10 emissions from on-road mobile sources would increase when compared to current conditions.	Emissions of particulate matter are directly related to growth and VMT. Regardless of how clean a vehicle operates, the vast majority of PM10 emissions from on-road sources is generated from re-entrained dust on paved roads and is a function of the vehicle miles traveled. Mitigation measures that reduce VMT are proposed. Additional measures to control fugitive dust and transportation-related PM10 are outlined in the 2003 SCAQMP and include control methods such as watering, chemical stabilization, paving, revegetation, track-out control, construction project signage, sweeping and motor vehicle controls. **MM 3.4-1a:** Additional mitigation measures are hereby incorporated by reference from the following air quality management plans: • 2003 South Coast State Implementation Plan (SIP) • Ventura County Air Quality Management Plan (2004 AQMP – Limited SIP Update, Scheduled for adoption in March 2004) • Mojave Desert Air Quality Management Plan (1996) • Antelope Valley Air Quality Management Plan (1994/97) • Imperial County Air Quality Management Plan (1991 and 1993)	After implementation of all feasible mitigation measures and incorporation of measures as described above, the project would most likely have a **significant** and unavoidable impact on regional air quality.	S (+)	S (+)	S (-)	S (-)
Impact 3.4-1b: Under the Plan, emissions of ROG, NOX, CO, SOX and TACs would decrease when compared to current conditions.	**MM 3.4-1b:** The 2003 SCAQMP control measures consist of 1) SCAQMD's Stationary and Mobile Source Control Measures; 2) State and Federal Source Control Measures proposed by CARB; and 3) Transportation Strategy and Control measures provided by SCAG. These control measures are based on the implementation of short-term, defined measures as well as long-term measures which will rely on new technologies to further reduce emissions. The SCAQMP includes estimated emissions reductions based on these short-term and long-term programs. The transportation improvements proposed for the short-term emissions reductions are grouped in the SCAQMP under Transportation Control Measure (TCM) project categories and include the following measures: • High Occupancy Vehicle (HOV) Measures: New HOV lanes, HOV bypasses and connectors, interchanges, High Occupancy Toll (HOT) Lanes; • Transit and System Management Measures: Transit, Intermodal Transfer Facilities, Non-motorized Transportation Mode Facilities; and • Information-based Transportation Strategies: Marketing for Rideshare and other services, Intelligent Transportation Systems, Telecommuting Programs and Real-time rail, transit or freeway	Beneficial	B	B	B	B

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	information systems. The 2004 RTP has been prepared to facilitate implementation of the transportation control measures outlined in the 2003 SCAQMP. The 2004 RTP incorporates both the capital and non-capital improvements recommended by the SCAQMP. ARB's strategy, outlined in the South Coast SIP, includes the following elements: • Set technology forcing new engine standards; • Reduce emissions from the in-use fleet; • Require clean fuels, and reduce petroleum dependency; • Work with USEPA to reduce emissions from federal and state sources; and • Pursue long-term advanced technology measures.					
Impact 3.4-2: Long-term (Operational) Localized Impacts Freeway operations under the Plan would be likely to exceed the locally acceptable cancer risk of 1 in one million.	Same mitigation measures as Impact 3.4-1a and b.	After implementation of all feasible mitigation measures the project would most likely have a **significant** and unavoidable impact.	S(+)	S(+)	S(-)	S(-)
Impact 3.4-3: Short-term (Construction) Regional Impacts Under the Plan, construction activities would increase short-term air emissions.	Compliance with SCAQMD Rule 403 (Fugitive Dust) will reduce emissions of fugitive dust from construction activities. The following additional air quality mitigation measures set forth a program of air pollution control strategies designed to reduce the project's air quality impacts from construction activities. **Land Clearing/Earth-Moving:** **MM 3.4-3a:** Apply water or dust suppressants to exposed earth surfaces to control emissions. **MM 3.4-3b:** All excavating and grading activities shall cease during second stage smog alerts and periods of high winds. **MM 3.4-3c:** All trucks hauling dirt, sand, soil, or other loose materials off-site shall be covered or wetted or shall maintain at least two feet of freeboard (i.e., minimum vertical distance between the top of the load and the top of the trailer). **Paved Surfaces:** **MM 3.4-3d:** All construction roads that have high traffic volumes, shall be surfaced with base material or decomposed granite, or shall be paved or otherwise be stabilized.	After implementation of all feasible mitigation measures and incorporation of project features as described above, activities related to construction of the project would most likely exceed emission thresholds for regional NOX, CO, PM10, SO2, and ROG. Therefore, construction of the	S (-)	S (=)	S (-)	S (+)

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	MM 3.4-3e: Public streets shall be cleaned, swept or scraped at frequent intervals or at least three times a week if visible soil material has been carried onto adjacent public roads. **MM 3.4-3f:** Construction equipment shall be visually inspected prior to leaving the site and loose dirt shall be washed off with wheel washers as necessary. **Unpaved Surfaces:** **MM 3.4-3g:** Water or non-toxic soil stabilizers shall be applied as needed to reduce off-site transport of fugitive dust from all unpaved staging areas and other unpaved surfaces. **MM 3.4-3h:** Traffic speeds on all unpaved surfaces shall not exceed 25 mph. **Other Construction Mitigation Measures** **MM 3.4-3i:** Low sulfur or other alternative fuels shall be used in construction equipment where feasible. **MM 3.4-3j:** Deliveries related to construction activities that affect traffic flow shall be scheduled during off-peak hours (e.g. 10:00 A.M. and 3:00 P.M.) and coordinated to achieve consolidated truck trips. When the movement of construction materials and/or equipment impacts traffic flow, temporary traffic control shall be provided to improve traffic flow (e.g., flag person). **MM 3.4-3k:** To the extent possible, construction activity shall utilize electricity from power poles rather than temporary diesel power generators and/or gasoline power generators. **MM 3.4-3l:** Revegetate exposed earth surfaces following construction.	2004 RTP would have a **significant** and unavoidable impact on regional air quality.				
Impact 3.4-4: Short-term Localized Impacts The cancer risk associated with construction projects under the Plan would likely exceed the locally acceptable cancer risk of 1 in one million.	**MM 3.4-4:** Construction equipment shall be equipped with diesel particulate traps. Low sulfur or other alternative fuels shall be used in construction equipment where feasible.	After implementation of all feasible mitigation measures and incorporation of measures as described above, the project would most likely have a **significant** and unavoidable impact on regional air quality.	S (=)	S (=)	S (=)	S (=)

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Impact 3.4-5: Cumulative air quality impacts Under the Plan criteria pollutant emissions would be less than the applicable emission budgets.	The impact is **less than significant** and therefore mitigation measures are not required.	Not applicable.	S (+)	S (+)	LS (-)	LS (-)
Impact 3.4-6: Increased air traffic would increase emissions from aircraft and ground support equipment (GSE).	Management of operations at the regional airports is not within the scope of SCAG's authority. No mitigation measures proposed by SCAG would effectively minimize aircraft emissions. Nonetheless, SCAG shall support efforts to minimize emissions at airports. ARB has proposed concepts that the federal government should consider to achieve emission reductions such as more stringent engine standards, retrofit controls, cleaner fuel and applying standards to non-tactical military aircraft. Additional environmental evaluation under CEQA will be required for airport expansion projects as well as long-range airport planning efforts at the local level. These evaluations will identify mitigation measures to reduce impacts of airport emissions on local air quality.	After implementation of all feasible mitigation measures as described above, activities related to aviation sources in the 2004 RTP (Preferred Aviation Plan) would most likely exceed current conditions for regional ROG, NOX, CO, SOX and PM10. Therefore aviation related emissions from the 2004 RTP would have a **significant** and unavoidable impact on regional air quality.	S (-)	S (=)	S (-)	S (=)
3.5 <u>Noise</u>						
Impact 3.5-1: Grading and construction activities associated with the proposed freeway, arterial, transit and Maglev projects identified in the 2004 RTP would intermittently and temporarily generate noise levels above ambient background levels. Noise levels in the immediate vicinity of the construction sites would increase substantially sometimes for extended duration.	**MM 3.5-1a:** Project implementing agencies shall comply with all local sound control and noise level rules, regulations, and ordinances. **MM 3.5-1b:** Project implementing agencies shall limit the hours of construction to between 6:00 a.m. and 8:00 p.m. on Monday through Friday and between 7:00 a.m. and 8:00 p.m. on weekends. **MM 3.5-1c:** Equipment and trucks used for project construction shall utilize the best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) in order to minimize construction noise impacts.	The above mitigation measures would reduce noise impacts; however, construction noise would still be **significant in the short term**.	S (-)	S (=)	S (-)	S (+)

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	MM 3.5-1d: Impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction will be hydraulically or electrically powered wherever possible, to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust would 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 where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures will be used such as the use of drilling rather than impact equipment, whenever feasible. **MM 3.5-1e:** Project implementing agencies shall ensure that stationary noise sources will be located as far from sensitive receptors as possible. If they must be located near existing receptors, they will be adequately muffled. **MM 3.5-1f:** The project implementing agencies shall designate a complaint coordinator responsible for responding to noise complaints received during the construction phase. The name and phone number of the complaint coordinator will be conspicuously posted at construction areas and on all advanced notifications. This person will be responsible for taking steps required to resolve complaints, including periodic noise monitoring, if necessary. **MM 3.5-1g:** Noise generated from any rock-crushing or screening operations performed within 3,000 feet of any occupied residence shall be mitigated by the project proponent by strategic placement of material stockpiles between the operation and the affected dwelling or by other means approved by the local jurisdiction. **MM 3.5-1h:** Project implementing agencies shall direct contractors to implement appropriate additional noise mitigation measures including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources to comply with local noise control requirements. **MM 3.5-1i:** Project implementing agencies shall implement use of portable barriers during construction of subsurface barriers, debris basins, and storm water drainage facilities. **MM 3.5-1j:** In residential areas, pile driving will be limited to daytime working hours. No pile-driving or blasting operations shall be performed within 3,000 feet of an occupied residence on Sundays, legal holidays, or					

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	between the hours of 8:00 p.m. and 8:00 a.m. on other days. Any variance from this condition shall be obtained from the project proponent and must be approved by the local jurisdiction. **MM 3.5-1k:** Wherever possible, sonic or vibratory pile drivers will be used instead of impact pile drivers (sonic pile drivers are only effective in some soils). If sonic or vibratory pile drivers are not feasible, acoustical enclosures will be provided as necessary to ensure that pile driving noise does not exceed speech interference criterion at the closest sensitive receptor. **MM 3.5-1l:** Engine and pneumatic exhaust controls on pile drivers will be required as necessary to ensure that exhaust noise from pile driver engines is minimized to the extent feasible. **MM 3.5-1m:** Where feasible, pile holes will be pre-drilled to reduce potential noise and vibration impacts.					
Impact 3.5-2: Noise-sensitive land uses could be exposed to noise in excess of normally acceptable noise levels or substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.). This is considered a potentially significant impact.	**MM 3.5-2a:** As part of the appropriate environmental review of each project, a project specific noise evaluation shall be conducted and appropriate mitigation identified and implemented. **MM 3.5-2b:** Project implementation agencies shall employ, where their jurisdictional authority permits, land use planning measures, such as zoning, restrictions on development, site design, and use of buffers to ensure that future development is compatible with adjacent transportation facilities. **MM 3.5-2c:** Project implementation agencies shall, to the extent feasible and practicable, 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. **MM 3.5-2d:** Project implementation agencies shall construct sound reducing barriers between noise sources and noise-sensitive land uses. Sound barriers can be in the form of earth-berms or soundwalls. Constructing roadways so as appropriate and feasible that they are depressed below-grade of the existing sensitive land uses also creates an effective barrier between the roadway and sensitive receptors. **MM 3.5-2e:** Project implementation agencies shall, to the extent feasible and practicable, improve the acoustical insulation of dwelling units where setbacks and sound barriers do not sufficiently reduce noise. **MM 3.5-2f:** The project implementation agencies shall implement, to the extent feasible and practicable, speed limits and limits on hours of operation of rail and transit systems, where such limits may reduce noise impacts. **MM 3.5-2g:** To reduce noise impacts, maximize distance of the Maglev	Although mitigation measures are implemented for the impact, it may not reduce noise levels to below regulatory levels, therefore, the impact would be **significant**.	S (-)	S (=)	S (-)	S (+)

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	route alignment from sensitive receptors. If the Maglev guideway is constructed along the center of a freeway, operation noise impacts would be reduced by the increase in distance to the noise sensitive sites and the masking effects of the freeway traffic noise. **MM 3.5-2h:** Reduce Maglev speed in the vicinity of sensitive receptors. **MM 3.5-2i:** As a last resort, eliminate the noise-sensitive receptor by acquiring rail and freeway right-of-way. This would ensure the effective operation of all transportation modes. **MM 3.5-2j:** Passenger stations, central maintenance facilities, decentralized maintenance facilities, and electric substations should be located away from sensitive receptors.					
Impact 3.5-3: Sensitive receptors could be exposed to noise in excess of normally acceptable noise levels or substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.). This is considered a potentially significant impact.	Mitigation measures intended to reduce the noise impacts on sensitive receptors are part of the 2004 RTP. These include: site design, buffers, soundwalls, etc. Further reduction in noise impacts would be obtained through the implementation of the measures described in **MM 3.5-2a through MM 3.5-2j**.	Although mitigation measures are recommended for the impact, they may not reduce noise levels to below regulatory levels. Therefore, the impact would be **significant.**	S (-)	S (=)	S (=)	S (-)
Cumulative Impact 3.5-4: Regional cumulative ambient noise levels could increase to exceed normally acceptable noise levels or have substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.). This is considered a potentially significant impact.	Mitigation measures intended to reduce the noise impacts on sensitive receptors are part of the 2004 RTP. These include: site design, buffers, soundwalls, etc. Further reduction in noise impacts would be obtained through the implementation of the measures described in **MM 3.5-2a through MM 3.5-2j**.	Although mitigation measures are recommended for the impact, this may not reduce noise levels to below regulatory levels. Therefore, the impact would be **significant.**	S (-)	S (=)	S (-)	S (+)
3.6 <u>Aesthetics and Views</u>						
Impact 3.6-1: Construction and implementation of individual 2004 RTP projects potentially would obstruct views of scenic resources.	**MM 3.6-1a:** Project implementation agencies shall implement design guidelines, local policies, and programs aimed at protecting views of scenic corridors and avoiding visual intrusions. **MM 3.6-1b:** Project implementation agencies shall, to the extent feasible, construct noise barriers of materials whose color and texture complements	This impact would be considered **significant** because it is likely that there will be situations	S (-)	S (=)	S (-)	S (+)

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	the surrounding landscape and development. Noise barriers shall be graffiti resistant and landscaped with plants that screen the barrier, preferably with either native vegetation or landscaping that complements the dominant landscaping of surrounding areas.	where visual impacts cannot be mitigated to a less than significant level.				
Impact 3.6-2: Construction and implementation of the proposed project potentially would alter the appearance of scenic resources along or near designated scenic highways and vista points.	**MM 3.6-2a:** Project implementation agencies shall, where practicable and feasible, avoid construction of transportation facilities in state and locally designated scenic highways and/or vista points. **MM 3.6-2b:** Project implementation agencies shall, complete design studies for projects in designated or eligible Scenic Highway corridors and develop site-specific mitigation measures to minimize impacts on the quality of the views or visual experience that originally qualified the highway for Scenic designation. **MM 3.6-2c:** If transportation facilities are constructed in state and locally designated scenic highways and/or vista points, design, construction, and operation of the transportation facility shall be consistent with applicable guidelines and regulations for the preservation of scenic resources along the designated scenic highway.	This impact would remain **significant** because it is likely that there will be situations where visual impacts cannot be mitigated to a less than significant level.	LS(-)	S (=)	S (=)	S (=)
Impact 3.6-3: Construction and implementation of the proposed project potentially would create significant contrasts with the overall visual character of the existing landscape setting.	**MM 3.6-3a:** Project implementation agencies shall develop design guidelines for each type of transportation facility that make elements of proposed facilities visually compatible with surrounding areas. Visual design guidelines shall, at a minimum, include setback buffers, landscaping, color, texture, signage, and lighting criteria. The following methods shall be employed whenever possible: • Transportation systems shall be developed to be compatible with the surrounding environment (i.e., colors and materials of construction material). • If exotic vegetation is used, it shall be used as screening and landscaping that blends in and complements the natural landscape. • Trees bordering highways shall remain or be replaced so that clear-cutting is not evident. • Grading shall blend with the adjacent landforms and topography.	This impact would remain **significant** because it is likely that there will be situations where visual impacts cannot be mitigated to a less than significant level.	S (-)	S (=)	S (-)	S (+)
Impact 3.6-4: The projects in the 2004 RTP potentially would add visual elements of urban character to an existing natural, rural, and open space area.	**MM 3.6-4a:** Project implementation agencies shall design projects to minimize contrasts in scale and massing between the project and surrounding natural forms and development. Project implementation agencies shall design projects to minimize their intrusion into important view sheds and use contour grading to better match surrounding terrain. **MM 3.6-4b:** Project implementation agencies shall use natural landscaping to minimize contrasts between the project and surrounding areas. Wherever possible, develop interchanges and transit lines at the grade of	This impact would remain **significant** because the mitigation measures would not be able to reduce the visual elements of urban character to a less	S (-)	S (=)	S (-)	S (+)

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	the surrounding land to limit view blockage. Contour the edges of major cut and fill slopes to provide a more natural looking finished profile.	than significant level.				
Cumulative Impact 3.6-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the overall visual character of the existing landscape setting.	**MM 3.6-5a:** In visually sensitive site areas, local land use agencies shall apply development standards and guidelines to maintain compatibility with surrounding natural areas, including site coverage, building height and massing, building materials and color, landscaping, site grading, etc.	This impact would remain **significant** because the population growth projected by 2030 in combination with the projects in the 2004 RTP would consume currently vacant land that would create significant contrasts with the overall visual character of the existing landscape setting.	S (=)	S (+)	S (-)	S (-)
3.7 <u>Biological Resources</u>						
Impact 3.7-1: Transportation projects included in the 2004 RTP on previously undisturbed land would potentially displace natural vegetation, and thus habitat, some of which is utilized by sensitive species in the SCAG region.	**MM 3.7-1.a:** Each transportation project shall assess displacement of habitat due to removal of native vegetation during route planning. Routes shall be planned in order to avoid and/or minimize removal of native vegetation. **MM 3.7-1.b:** When avoidance of native vegetation removal is not possible, each transportation project shall replant disturbed areas with commensurate native vegetation of high habitat value adjacent to the project (i.e. as opposed to ornamental vegetation with relatively less habitat value). **MM 3.7-1c:** Individual transportation projects shall include offsite habitat enhancement or restoration to compensate for unavoidable habitat losses from the project site.	Although many measures can be employed to minimize the impacts to habitat due to vegetation removal, for a regional plan of this scale, the impact remains **significant**.	S (-)	S (=)	S (-)	S (+)
Impact 3.7-2: The 2004 RTP would potentially contribute to the fragmentation of existing habitat, decreasing habitat patch sizes, reducing habitat connectivity, and causing direct injury to wildlife. The 2004 RTP includes new transportation corridors that may form barriers to animal migration or foraging routes.	**MM 3.7-2a:** Individual transportation projects included in the 2004 RTP shall conduct site-specific analyses of opportunities to preserve or improve habitat linkages with areas on and off-site. Mitigation banking (opportunities to purchase, maintain, and/or restore offsite habitat) is one opportunity that project proponents and jurisdictions may pursue. **MM 3.7-2b:** Each transportation project shall provide wildlife crossings/access at locations useful and appropriate for the species of concern. **MM 3.7-2c:** Individual transportation projects shall include analysis of	Route planning to minimize habitat fragmentation impacts, wildlife crossings, on- and off-site habitat restoration and linkages would all reduce the impacts	S (-)	S (=)	S (-)	S (+)

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	wildlife corridors during project planning. Impacts to these corridors shall be avoided and/or minimized. **MM 3.7-2d:** Each transportation project included in the Plan shall use wildlife fencing where appropriate to minimize the probability of wildlife injury due to direct interaction between wildlife and roads. Inclusion of this mitigation measure shall be considered on a case-by-case basis, as use of wildlife fencing could further increase the effects of habitat fragmentation and isolation for many species.	of habitat fragmentation, isolation, and direct injury to wildlife due to transportation projects. For some species, implementation of MM 3.7-2d would increase the degree of habitat fragmentation. At a regional scale, the fragmentation of habitat due to the large scale of the 2004 RTP would not be fully avoided or mitigated. The impact would remain **significant.**				
Impact 3.7-3: The 2004 RTP includes new transportation facilities that would potentially increase near-road human disturbances such as litter, trampling, light pollution and road noise in previously relatively inaccessible and undisturbed natural areas.	**MM 3.7-3a:** Individual transportation projects shall minimize vehicular accessibility to areas beyond the actual transportation surface. This can be accomplished through fencing and signage. **MM 3.7-3b:** Each project shall establish litter control programs in appropriate areas, such as trash receptacles at road turnouts and view points. **MM 3.7-3c:** Each project shall use road noise minimization methods, such as brush and tree planting, at heavy noise-producing transportation areas that might affect wildlife. Native vegetation should be used.	In many cases, the mitigation measures outlined above would avoid or minimize impacts to wildlife. However, at the regional scale, additional transportation projects would increase wildlife disturbance and the impact would remain **significant**.	S (-)	S (=)	S (-)	S (+)
Impact 3.7-4: The 2004 RTP projects would potentially damage natural vegetation and other habitat components as a result of trampling or off-road machinery during the construction phases	**MM 3.7-4a:** Each project shall be preceded by pre-construction monitoring to ensure no sensitive species' habitat would be unnecessarily destroyed. All discovered sensitive species habitat shall be avoided where feasible, or disturbance shall be minimized.	Full implementation of each of these mitigation measures would avoid and/or	LS (-)	LS (=)	LS (-)	LS (+)

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for these projects. Direct fatalities to wildlife would also potentially occur.	**MM 3.7-4b:** Each project shall schedule work to avoid critical life stages (e.g. nesting) of species of concern. **MM 3.7-4c:** Each project shall fence and/or mark sensitive habitat to prevent unnecessary machinery or foot traffic during construction activities. **MM 3.7-4d:** When removal and/or damage to sensitive species habitat is unavoidable during construction, each project shall replant any disturbed natural areas with appropriate native vegetation following the completion of construction activities.	minimize the construction impacts to **less than significant** levels.				
Impact 3.7-5: The 2004 RTP projects would potentially create noise, smoke, lights and/or other disturbances to biological resources during construction phases for these projects.	**MM 3.7-5a:** Individual projects shall avoid and/or minimize construction activities that have the potential to expose species to noise, smoke, or other disturbances. Pre-construction surveys shall be conducted as appropriate to determine the presence of any species that would need to be protected from such an impact. **MM 3.7-5b:** Individual projects shall be scheduled to avoid construction during critical life stages or sensitive seasons (e.g. the nesting season).	Avoidance and minimization of impacts during construction, with special consideration for critical life stages and seasons of special status species would not reduce this impact to less than significant. The impact remains **significant.**	S (-)	S (=)	S (-)	S (+)
Impact 3.7-6: The 2004 RTP includes projects that would potentially displace riparian or wetland habitat.	**MM 3.7-6a:** Construction through or adjacent to wetlands or riparian areas shall be avoided where feasible through route-planning. **MM 3.7-6b:** Each transportation project shall avoid removal of wetland or riparian vegetation. Specific vegetation that is not to be removed shall be so marked during construction. Riparian vegetation removal shall be minimized. **MM 3.7-6c:** Each transportation project shall replace any disturbed wetland, riparian or aquatic habitat, either on-site or at a suitable off-site location at ratios to ensure no net loss. **MM 3.7-6d:** When individual projects include unavoidable losses of riparian or aquatic habitat, adjacent or nearby riparian or aquatic habitat shall be enhanced (e.g. through removal of non-native invasive wetland species and replacement with more ecologically valuable native species).	The impact to wetlands and riparian areas would remain **significant**.	S (-)	S (=)	S (-)	S (+)
Impact 3.7-7: The 2004 RTP would potentially increase siltation of streams and other water resources from exposures of erodible soils during construction activities.	**MM 3.7-7a:** Individual projects near water resources shall implement Best Management Practices (BMPs) at construction sites to minimize erosion and sediment transport from the area. BMPs include encouraging growth of vegetation in disturbed areas, using straw bales or other silt-catching devices, and using settling basins to minimize soil transport. A more	Full implementation of each of these mitigation measures would not avoid the siltation impacts. The	S (-)	S (=)	S (-)	S (+)

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Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
	detailed description of BMPs is provided in Section 3.12 Water Resources. **MM 3.7-7b:** Individual projects shall schedule construction activities to avoid sensitive times for biological resources (e.g. steelhead spawning periods during the winter and spring) and to avoid the rainy season when erosion and sediment transport is increased.	impact remains **significant**.				
Impact 3.7-8: Implementation of the 2004 RTP would not conflict with any provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan (NCCP).	No mitigation measures are necessary.	The impact is **less than significant**.	LS (=)	LS (=)	LS (=)	LS (=)
Cumulative Impacts 3.7-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization.	The cumulative impacts to biological resources due to the forecast urban development associated with the 2004 RTP, would be mitigated using the same measures detailed for Impacts 3.7-1 through 3.7-8, in addition to the following measure. **MM 3.7-9a:** Future impacts to biological resources shall be minimized through cooperation, information sharing, and program development during the update of the Open Space and Conservation chapter of SCAG's *Regional Comprehensive Plan* and Guide and through SCAG's Energy and Environment Committee. SCAG shall consult with the resource agencies, such as U.S. Fish and Wildlife Service and California Department of Fish and Game during this update process.	The impacts to biological resources due to regional growth would be reduced through application of the mitigation measures; however, the 2004 RTP's accommodation of approximately 6 million people in the SCAG region by 2030 would contribute to cumulative impacts. Implementation of the 2004 RTP would have a cumulatively considerable contribution to urbanization, and, thus, the impact would remain **significant**.	S (=)	S (+)	S (-)	S (-)
3.8 <u>Cultural Resources</u>						
Impact 3.8-1: Development of highway, arterial and transit projects would potentially impact historic resources.	**MM 3.8-1a:** As part of the appropriate environmental review of individual projects, the project implementation agencies shall identify potential impacts to historic resources. A record search at the appropriate Information Center	Due to the size and potentially large number of historic	S (-)	S(=)	S (-)	S (+)

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IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
	shall be conducted to determine whether the project area has been previously surveyed and whether resources were identified. **MM 3.8-1b**: As necessary, prior to construction activities, the project implementation agencies shall obtain a qualified architectural historian to conduct historic architectural surveys as recommended by the Archaeological Information Center. In the event the records indicate that no previous survey has been conducted, the Information Center will make a recommendation on whether a survey is warranted based on the sensitivity of the project area for cultural resources within 1,000 feet of the improvement. **MM 3.8-1c:** The project implementation agencies shall comply with Section 106 of the NHPA if federal funding or approval is required. 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. This mitigation measure may include, but are not limited to the following: • The project implementation agencies shall carry out the maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of any impacted historic resource, which shall be conducted in a manner consistent with the Secretary of the Interior's Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. Weeks and Grimmer (1995). In some instances, the following mitigation measure may be appropriate in lieu of the previous mitigation measure: **MM 3.8-1d:** The project implementation agencies shall secure a qualified environmental agency and/or architectural historian, or other such qualified person to document any significant historical resource(s), by way of historic narrative, photographs, or architectural drawings, as mitigation for the effects of demolition of a resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur.	properties listed that could be disturbed as a result of the combined projects, this impact would remain a potentially **significant** impact to historic resources.				
Impact 3.8-2: Construction activities involving excavation and earthmoving would potentially encounter archaeological resources.	**MM 3.8-2a:** As part of the appropriate environmental review of individual projects, the project implementation agencies shall consult with the NAHC to determine whether known sacred sites are in the project area, and identify the Native American(s) to contact to obtain information about the project site. **MM 3.8-2b:** Prior to construction activities, the project implementation agencies shall obtain a qualified archaeologist to conduct a record search at	Due to the size and potentially large number of archaeological sites that could be disturbed as a result of the	S (-)	S(=)	S (-)	S (+)

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IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
	the appropriate Information Center of the California Archaeological Inventory to determine whether the project area has been previously surveyed and whether resources were identified. **MM 3.8-2c:** As necessary prior to construction activities, the project implementation agencies shall obtain a qualified archaeologist or architectural historian (depending on applicability) to conduct archaeological and/or historic architectural surveys as recommended by the Information Center. In the event the records indicate that no previous survey has been conducted, the Information Center will make a recommendation on whether a survey is warranted based on the sensitivity of the project area for cultural resources. **MM 3.8-2d:** If the record search indicates that the project is located in an area rich with cultural materials, the project proponent shall retain a qualified archaeologist to monitor any subsurface operations, including but not limited to grading, excavation, trenching, or removal of existing features of the subject property. **MM 3.8-2e:** Construction activities and excavation should be conducted to avoid cultural resources (if found). If avoidance is not feasible, further work may need to be done to determine the importance of a resource. The project implementation agencies shall obtain a qualified archaeologist familiar with the local archaeology, and/or an architectural historian should make recommendations regarding the work necessary to determine importance. If the cultural resource is determined to be important under state or federal guidelines, impacts on the cultural resource will need to be mitigated. **MM 3.8-2f:** Project implementation agencies shall stop construction activities and excavation in the area where cultural resources are found until a qualified archaeologist can determine the importance of these resources.	combined projects, this impact would remain a **significant** impact to archaeological resources.				
Impact 3.8-3: Construction activities involving excavation and earthmoving may encounter paleontological materials. This is a significant impact.	**MM 3.8-3a:** As part of the appropriate environmental review of individual projects, the project implementation agencies shall obtain a qualified paleontologist to identify and evaluate paleontological resources where potential impacts are considered high; the paleontologist shall also conduct a field survey in these areas. **MM 3.8-3b:** Construction activities shall avoid known paleontological resources, if feasible, especially if the resources in a particular lithic unit formation have been determined through detailed investigation to be unique. If avoidance is not feasible, paleontological resources should be excavated by the qualified paleontologist and given to a local agency, or other applicable institution, where they could be displayed.	Due to the size and potentially large number of paleontological localities that could be disturbed as a result of the combined projects, this impact would remain a **significant** impact.	S (-)	S(=)	S (-)	S (+)

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Impact 3.8-4: Construction activities involving excavation and earthmoving may encounter human remains.	**MM 3.8-4a:** As part of the appropriate environmental review of individual projects, the project implementation agencies, 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, shall 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; and **MM 3.8-4b:** If the remains are of Native American origin, • The coroner will contact the Native American Heritage Commission in order to ascertain the proper descendants from the deceased individual. The coroner shall 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. or, • If the Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission, in which case • The landowner or his authorized representative shall obtain a 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 where the following conditions occur: - The NAHC is unable to identify a descendent; - The descendant identified fails to make a recommendation; or - The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the NAHC Commission fails to provide measures acceptable to the landowner.	The recommended mitigation would require the local jurisdiction to follow a comprehensive procedure to assess the magnitude of the impact, and to avoid or mitigate the impacts, if necessary, therefore this impact is considered **less than significant** after mitigation.	S (-)	S(=)	S (-)	S (+)
Cumulative Impact 3.8-5: Urbanization in the SCAG region will increase substantially by 2030.	The cumulative impacts to cultural resources, due to the forecast urban development associated with the 2004 RTP, would be mitigated using the	The impacts to cultural resources	S (=)	S (+)	S (-)	S (-)

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IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to existing historic resources and previously undisturbed and undiscovered cultural resources, as described in Impacts 3.8-1 through 3.8-4 above.	same measures detailed for Impacts 3.7-1 through 3.7-8, in addition to the following measure. **MM 3.8-5a:** Future impacts to cultural resources shall be minimized through cooperation, information sharing, and program development of SCAG's *RCPG* and through SCAG's Energy and Environment Committee. The resource agencies, such as the Office of Historic Preservation, shall be consulted during this update process.	due to regional scale growth would be reduced through application of the mitigation measures, however the 2004 RTP's accommodation of approximately 6 million people to the SCAG region by 2030 would contribute to cumulative impacts. The 2004 RTP would **contribute significantly** to cumulative regional cultural impacts.				
3.9 <u>Geology, Soils, and Seismicity</u>						
Impact 3.9-1: Seismic events can damage transportation infrastructure through surface rupture, ground shaking, liquefaction, and landsliding. In addition, seismically induced tsunami and seiche waves can damage transportation infrastructure proximate to coastal areas. Potential impacts to property and public safety from seismic activity would be considered significant in some cases.	**MM 3.9-1a:** Implementing agencies shall ensure that projects be designed in accordance with county and city code requirements for seismic ground shaking. The design of projects shall consider seismicity of the site, soil response at the site, and dynamic characteristics of the structure, in compliance with the appropriate California Building Code standards for construction in or near fault zones. **MM 3.9-1b:** Implementing agencies shall ensure that projects located within or across Alquist-Priolo Zones comply with design requirements provided in Special Publication 117, published by the CGS, as well as relevant local, regional, state, and federal design criteria for construction in seismic areas. **MM 3.9-1c:** The project implementing agencies shall ensure that geotechnical analysis is conducted within construction areas to ascertain soil types and local faulting prior to preparation of project designs.	**Less than significant**.	LS (-)	LS(=)	LS (-)	LS (+)
Impact 3.9-2: Highway and rail construction can require significant earthwork and road cuts, increasing long-term erosion potential and slope failure. Earthwork can also alter unique geologic features. The impacts of projects considered as	**MM 3.9-2a:** The project implementing agencies shall ensure that project designs provide adequate slope drainage and appropriate landscaping to minimize the occurrence of slope instability and erosion. Design features shall include measures to reduce erosion from stormwater. Road cuts shall be designed to maximize the potential for revegetation.	Given the topography, ecology and meteorology of the SCAG region, long-	S (-)	S (=)	S (-)	S (+)

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part of the 2004 RTP would be considered significant in some cases.	**MM 3.9-2b:** Implementing agencies shall ensure that projects avoid landslide areas and potentially unstable slopes wherever feasible. **MM 3.9-c:** Where practicable, routes and project designs that would permanently alter unique geologic features shall be avoided.	term erosion and the potential for slope-failure will remain **significant**.				
Impact 3.9-3: Local geology can affect transportation infrastructure. Potentially significant impacts to property and public safety could occur due to subsidence and the presence of expansive soils.	**MM 3.9-3a:** Implementing agencies shall ensure that geotechnical investigations are conducted by a qualified geologist to identify the potential for subsidence and expansive soils. Recommended corrective measures, such as structural reinforcement and replacing soil with engineered fill, shall be implemented in project designs. **MM 3.9-3b:** Implementing agencies shall ensure that, prior to preparing project designs, new and abandoned wells are identified within construction areas to ensure the stability of nearby soils.	L**ess than significant**.	LS (-)	LS (=)	LS (-)	LS (+)
Cumulative Impact 3.9-4: The actions considered by the 2004 RTP have the potential to cause cumulatively considerable adverse effects on human beings, when considered at the regional scale.	The project-level mitigation measures (MM 3.9-1 to MM 3.9-3) specified in the three impact categories discussed above, are expected, generally, to provide some measure of additive relief from the potential hazards due to geologic and seismic factors. In addition, the regional-scale planning and growth visioning activities carried out by SCAG in preparation of the 2004 RTP are expected to heighten awareness, particularly among county and city agencies, of the importance of appropriate siting decisions. As can be read from the maps used in this analysis, while it is meaningful to speak of the ubiquity of seismic and geologic hazards throughout the SCAG region, it is also notable that many of the hazards are highly localized. Appropriate use of engineering technologies, when coupled with well thought-out siting decisions, can considerably lessen the potential for harm to human life and property resulting from these factors, taken together.	Despite the inclusion of the proposed mitigation measures, the cumulative impact remains **significant**.	S (-)	S (=)	S (-)	S (+)
3.10 <u>Hazardous Materials</u>						
Impact 3.10-1: The implementation of the 2004 RTP would create a potential hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during transportation. This would be a significant impact.	**MM 3.10-1a:** SCAG shall encourage the USDOT, the Office of Emergency Services, and the Caltrans to continue to conduct driver safety training programs and encourage the private sector to continue conducting driver safety training. **MM 3.10-1b:** SCAG shall encourage the USDOT and the CHP to continue to enforce speed limits and existing regulations governing goods movement and hazardous materials transportation.	The improvements to the regional transportation system by 2030 would facilitate a substantial increase in the transportation of all goods, including hazardous materials. Even with the above mitigation, this impact would	S (-)	S (+)	S (-)	S (+)

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		remain **significant**.				
Impact 3.10-2: The implementation of the 2004 RTP would create a potential hazard to the public or the environment through the use or disposal of hazardous materials in the construction and maintenance of transportation facilities.	**None required**.	The impact is **less than significant**.	LS (-)	LS (=)	LS (-)	LS (+)
Impact 3.10-3: Implementation of the 2004 RTP would result in the potential release of hazardous materials within one-quarter mile of schools.	**MM 3.10-3a:** SCAG shall encourage the USDOT, the Office of Emergency Services, and Caltrans to continue to conduct driver safety training programs and encourage the private sector to continue conducting driver safety training **MM 3.10-3b:** SCAG shall encourage the USDOT and the CHP to continue to enforce speed limits and existing regulations governing goods movement and hazardous materials transportation. **MM 3.10-3c:** Prior to approval of any RTP project, the Lead Agency for each individual project shall consider existing and known planned school locations when determining the alignment of new transportation projects and modifications to existing transportation facilities.	The transportation of hazardous materials within one-quarter mile of schools would remain a **significant** impact, even with the above mitigation.	S (-)	S (=)	S (-)	S (=)
Impact 3.10-4: Implementation of the 2004 RTP would create a potential hazard to the public or the environment by the disturbance of contaminated property during the construction of new or the expansion of existing transportation facilities.	**MM 3.10-4a:** Prior to approval of any RTP project, the project implementation agency shall consult all known databases of contaminated sites in the process of planning, environmental clearance, and construction for projects included in the 2004 RTP. Where contaminated sites are identified, the project implementation agency shall develop appropriate mitigation 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.	The mitigation measure would assure that contaminated properties are identified and appropriate steps taken to minimize human exposure and prevent any further environmental contamination. The impact after mitigation would be **less than significant**.	LS (-)	LS (=)	LS (-)	LS (=)
Cumulative Impact 3.10-5: The 2004 RTP would contribute a cumulatively significant amount of hazardous material transportation impacts to counties outside of the SCAG region.	The projects and measures designed to minimize VHT and VMT that are included in the 2004 RTP as well as Mitigation Measures 3.3-1a, 3.4-1a, and 3.4-1b, would minimize this effect.	Even with the above mitigation, the regional contribution would remain	S (+)	S (+)	S (-)	S (+)

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		significant.				
Cumulative Impact 3.10-6: Implementation of the investments and policies in the 2004 RTP would create a potential hazard to the public or the environment by the disturbance of contaminated sites as a result of population and housing growth in the region.	**MM 3.10-6a:** As with new or expanded transportation projects, planners and private developers can and should check published lists of contaminated properties, which are continually updated, to identify cases where new development would involve the disturbance of contaminated properties.	With the use of these published lists, this impact should be less than cumulatively considerable and therefore **less than significant** with mitigation.	LS (-)	LS (-)	LS (+)	LS (=)
3.11 <u>Energy</u>						
Impact 3.11-1: The implementation of the 2004 RTP is likely to use electricity, natural gas, gasoline, diesel, or other non-renewable energy types in the construction and expansion of the regional transportation system.	**None.**	The impact is **less than significant**.	LS (-)	LS (=)	LS (-)	LS (+)
Impact 3.11-2: The implementation of the 2004 RTP is likely to substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other non-renewable energy types in the operation of the transportation system between the current conditions and 2030. This would be a significant impact.	In addition to the mitigation measures specified below, mitigation measures for the impacts of transportation system usage would serve to mitigate the impacts of growing transportation energy demand. In particular, Mitigation Measures **MM 3.3-1a, MM 3.4-1a and MM 3.4-1b** would contribute to energy impact mitigation. **MM 3.11-2a:** Project implementation agencies shall review energy impacts as part of project-specific environmental review as required by CEQA. For any identified impacts, appropriate mitigation measures should be identified. The project implementation agency or local jurisdiction shall be responsible for ensuring adherence to the mitigation measures. **MM 3.11-2b:** For any project anticipated to require substantial electrical usage, the project implementation agency shall submit projected electricity and natural gas demand calculations to the local electricity or natural gas provider, respectively, for its analysis. Any infrastructure improvements necessary for project construction shall be completed according to the specifications of the energy provider. **MM 3.11-2c:** Transit providers shall, as feasible, assure that designers of new transit stations incorporate solar panels in roofing and tap other renewable energy sources to offset new demand on conventional power sources. **MM 3.11-2d:** SCAG shall encourage state and federal lawmakers and regulatory agencies to pursue the design of programs to either require or	The regional increase in transportation-related energy demand as a result of implementing the 2004 RTP would remain a **significant** impact, even with the above mitigation.	S (+)	S (+)	S (-)	S (-)

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	incentivize the expanded availability and use of alternative-fuel vehicles to reduce the impact of shifts in petroleum fuel supply and price.					
Cumulative Impact 3.11-3: Implementation of the investments and policies in the 2004 RTP would contribute to a cumulatively considerable increase in the amount of total energy consumed in the SCAG region between 2000 and 2030. This would be a significant impact.	Mitigation Measures **MM 3.11-2a through MM 3.11-2d** will help to mitigate the cumulative impacts on energy consumption related to the 2004 RTP in addition to the following measure: **MM 3.11-3a:** SCAG shall continue to work with local jurisdictions and energy providers, through its Energy and Environment Committee and other means, to encourage regional-scale planning for improved energy management. Future impacts to energy shall be minimized through cooperative planning, and information sharing within the SCAG region. This cooperative planning shall occur during the update of the Energy chapter of SCAG's *RCPG*.	Even with mitigation, this cumulative impact can be expected to remain **significant**.	S (=)	S (+)	S (-)	S (-)
3.12 <u>Water Resources</u>						
Impact 3.12-1: Local surface water quality would potentially be degraded by increased roadway runoff created by RTP projects, potentially violating water quality standards associated with wastewater and stormwater permits. These projects would potentially alter the existing drainage patterns in ways that could result in substantial erosion or siltation.	In addition to **MM 3.7-7a** and **MM 3.9-2a**, the following mitigation measures are recommended: **MM 3.12-1a:** Transportation improvements shall comply with federal, state, and local regulations regarding storm water management. State-owned highways and other transportation facilities are subject to compliance with a statewide stormwater permit issued to Caltrans. **MM 3.12-1b:** Project implementation agencies shall ensure that new facilities include water quality control features such as drainage channels, detention basins, and vegetated buffers to prevent pollution of adjacent water resources by polluted runoff. Wherever feasible, detention basins shall be equipped with oil and grease traps and other appropriate, effective and well-maintained control measures. **MM 3.12-1c:** Project implementation agencies shall ensure that operational best management practices for street cleaning, litter control, and catch basin cleaning are implemented to prevent water quality degradation. **MM 3.12-1d:** SWPPPs shall be submitted to the SWRCB when proposed transportation improvement projects require construction activities. In these activities BMPs shall be followed to manage site erosion and spill control. **MM 3.12-1e:** Projects requiring the discharge of dredged or fill materials into U.S. waters, including wetlands, shall comply with sections 404 and 401 of the CWA including the requirement to obtain a permit from the U.SACE and the governing RWQCB. **MM 3.12-1f:** Long-term sediment control shall include an erosion control and revegetation program designed to allow reestablishment of native vegetation on slopes and undeveloped areas.	The mitigation measures would not fully mitigate water quality degradation, violation of water quality standards, or prevent erosion or siltation. The impact remains **significant.**	S (-)	S (=)	S (-)	S (+)

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	MM 3.12-1g: Drainage of roadway runoff should, wherever possible, be designed to run through vegetated median strips, contoured to provide adequate storage capacity and to provide overland flow, detention and infiltration before it reaches culverts. Detention basins and ponds, aside from controlling runoff rates, can also remove particulate pollutants through settling.					
Impact 3.12-2: Increased impervious surfaces due to transportation projects would reduce groundwater infiltration.	**MM 3.12-2a:** Project implementation agencies shall avoid designs that require continual dewatering where feasible. **MM 3.12-2b:** Project implementation agencies shall ensure that projects that do require 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 Uniform Building Code. **MM 3.12-2c:** Detention basins, infiltration strips, and other features to control surface runoff and facilitate groundwater recharge shall be incorporated into the design of new transportation projects.	Implementation of these mitigation measures would reduce the regional impact to **less than significant**.	LS (-)	LS (=)	LS (-)	LS (+)
Impact 3.12-3: The 2004 RTP would potentially increase flooding hazards, by placing structures, such as transportation investments, on alluvial fans and within 100-year flood hazard areas. The proposed 2004 RTP could alter existing drainage patterns or substantially increase the rate or amount of surface runoff in a manner that would result in flooding or produce or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems.	In addition to **MM 3.7-6a** through **MM 3.7-6d**, the following mitigation measures are recommended: **MM 3.12-3a:** Natural riparian conditions near projects shall be maintained, wherever feasible, to minimize the effects of stormwater flows at stream crossings. **MM 3.12-3b:** Prior to construction, a drainage study shall be conducted for each new project. Drainage systems shall be designed to maximize the dissipation of storm flow velocities with the use of detention basins and vegetated areas, measures that will reduce storm flow risks to areas downstream of a project. Projects shall consider designs for the lateral transmission of storm water and other similar means to minimize the risks of upstream flooding **MM 3.12-3c:** All roadbeds for new highway and rail facilities should be elevated at least one foot above the 100-year base flood elevation. Since alluvial fan flooding is not often identified on FEMA flood maps, the risk of alluvial fan flooding shall be evaluated and projects shall be sited to avoid alluvial fan flooding where feasible. **MM 3.12-3d:** Transportation improvements shall comply with local, state, and federal floodplain regulations. Projects requiring federal approval or funding shall comply with Executive Order 11988 on Floodplain Management, which requires avoidance of incompatible floodplain	After implementation of the mitigation measures, the 2004 RTP projects would regionally have a **less than significant** impact.	LS (-)	LS (=)	LS (-)	LS (+)

Key:
+ Greater Adverse Impact than Proposed 2004 RTP
= Similar Impact as Proposed 2004 RTP
- Less Adverse Impact than Proposed 2004 RTP

B = Beneficial
LS = Less-than-Significant
S = Significant

Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
	development, restoration and preservation of the natural and beneficial floodplain values, and maintenance of consistency with the standards and criteria of the National Flood Insurance Program. **MM 3.12-3e:** Improvement projects on existing facilities shall include upgrades to 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. System designs shall be completed to eliminate increases in peak flow rates from current levels.					
Cumulative Impact 3.12-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to water quality.	**Mitigation Measures 3.12-1a through 3.12-1g** shall be applied to all urban development projects, as feasible, in addition to the following measure. **MM 3.12-4a:** SCAG shall continue to work with local jurisdictions and water quality agencies, through its Water Policy Task Force and other means, to encourage regional-scale planning for improved water quality management and pollution prevention. Future impacts to water quality shall be avoided through cooperative planning, information sharing and comprehensive pollution control measure development within the SCAG region. This cooperative planning shall occur during the update of the Water Resources and Water Quality chapters of SCAG's RCPG and through SCAG's Water Policy Task Force. This task force offers an opportunity for local jurisdictions and water agencies to share information and strategies to plan for water quality in the region.	The urban development expected by 2030 would create adverse water quality and waste discharge conditions and/or unfavorably alter existing drainage patterns in a manner that would result in substantial erosion or siltation. The 2004 RTP's influence on growth distribution is a cumulatively considerable contribution to this **significant impact.**	S (=)	S (+)	S (-)	S (-)
Cumulative Impact 3.12-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to stormwater infiltration and groundwater recharge.	**Mitigation Measures 3.12-2a through 3.12-2c** shall be applied to all urban development projects, as feasible, in addition to the following measure. **MM 3.12-5a:** SCAG shall continue to work with local jurisdictions and water agencies, through its Water Policy Task Force and other means, including the update of the Water Quality and Water Resources chapters for SCAG's RCPG, to encourage regional-scale planning for improved stormwater management and groundwater recharge. Future adverse impacts shall be avoided through cooperative planning, information sharing, and comprehensive implementation efforts within the SCAG region. SCAG's Water Policy Task Force offers an opportunity for local jurisdictions and water agencies to share information and strategies for improving regional	The urban development expected by 2030 would potentially affect stormwater infiltration and groundwater recharge. Future planning and implementation efforts may reduce	S (=)	S (+)	S (-)	S (-)

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Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
	performance in these efforts.	the significance of this impact. However, given current conditions, the 2004 RTP's effects on stormwater infiltration and groundwater recharge would contribute to a **significant impact** on regional water resources.				
Cumulative Impact 3.12-6: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in flooding hazard impacts.	**Mitigation Measures 3.12-3a through 3.12-3e** shall be applied to all urban development projects, as feasible.	Urban development expected by 2030 would potentially result in additional structures in areas with flood hazards. Future planning efforts may reduce the significance of this impact; however, to assume that all flood hazards would be avoided would be speculative. The 2004 RTP's effects on population distribution and its associated contribution to the impact of flooding hazards is **significant.**	S (=)	S (+)	S (-)	S (-)
Cumulative Impact 3.12-7: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by including land-use-transportation measures,	**MM 3.12-7a:** Local jurisdictions should encourage new development and industry to locate in those service areas with existing wastewater infrastructure and treatment capacity. **MM 3.12-7b:** Wastewater treatment agencies are encouraged to have	The mitigation measures would lessen the impacts on wastewater	S (=)	S (=)	S (=)	S (=)

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Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the need for increased wastewater treatment capacities in the region by 2030.	expansion plans, approvals and financing in place once their facilities are operating at 80 percent of capacity. Through the update to the Water Quality and Water Resources chapter of SCAG's RCPG, SCAG shall provide opportunities for information sharing and program development. **MM 3.12-7c:** Local jurisdictions should promote reduced wastewater system demand by: • designing wastewater systems to minimize inflow and infiltration to the extent feasible, • reducing overall source water generation by domestic and industrial users, • deferring development approvals for industries that generate high volumes of wastewater until wastewater agencies have expanded capacity.	treatment capacity in the region; however, they are not expected to prevent an imbalance between the demand for regional capacity and existing regional capacity. The 2004 RTP would make a cumulatively considerable contribution to this **significant impact.**				
Cumulative Impact 3.12-8: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to an increased demand for water supply and its associated infrastructure. Comparing 2030 demands to existing supplies does not fully reflect the ongoing water planning conducted by water agencies in the region. While existing supplies and infrastructure may not be sufficient to meet expected 2030 demands, most water agencies have plans in place to respond to future growth. However, the *existing* water supplies and infrastructure would not be sufficient to meet the expected demand in 2030.	**MM 3.12-8a:** SCAG shall facilitate local water agencies' informing local jurisdictions of their continued efforts to evaluate future water demands and establish the necessary supply and infrastructure, as documented in their Urban Water Management Plans. **MM 3.12-8b:** SCAG shall facilitate local water agencies' informing local jurisdictions of their continued efforts to develop supplies to meet projected demand in 2030. **MM 3.12-8c:** SCAG shall facilitate information-sharing about the kind of regional coordination throughout California and the Colorado River Basin that develops and supports sustainable growth policies. **MM 3.12-8d:** Future impacts to water supply shall be minimized through cooperation, information sharing, and program development during the update of the Water Resources chapter of SCAG's *RCPG* and through SCAG's Water Policy Task Force. This task force presents an opportunity for local jurisdictions and water agencies to share information and strategies (such as those listed above) about their on-going water supply planning efforts, including the following types of actions: • Minimize impacts to water supply by developing incentives, education and policies to further encourage water conservation and thereby reduce demand. • Involve the region's water supply agencies in planning efforts in order to make water resource information, such as water supply and water quality, location of recharge areas and groundwater, and other useful information available to local jurisdictions for use in their land use planning and decisions.	Full implementation of these water supply mitigation measures would provide an adequate and reliable future water supply and infrastructure. The various water agencies update their Urban Water Management Plans to ensure that planning for the water needs of future growth is accommodated in a timely manner. However, CEQA requires the determination of significance to be based on a comparison between *existing* water supply	S (=)	S (=)	S (+)	S (+)

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Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
	• Provide, as appropriate, legislative support and advocacy of regional water conservation, supply and water quality projects. • Promote water-efficient land use development. The Water Policy Task Force and the update to SCAG's *RCPG* present an opportunity for SCAG to partner with the region's water agencies in outreaching to local government on important water supply issues. SCAG provides a unique opportunity to increase communication between land use and water planners. The goals of the Task Force would not be to duplicate existing efforts of the water agencies.	and infrastructure and expected future demand. Although ensuring a reliable water supply for urban and other water demands in 2030 is probable, the current, existing water supply and infrastructure would not be able to support the population in the Plan in 2030. Through its influence on regional growth, the 2004 RTP would make a cumulatively considerable contribution to this **significant impact.**				
3.13 <u>Public Services and Utilities</u>						
Impact 3.13-1: Construction and implementation of the 2004 RTP would affect the level of transportation-related public services facilities, such as police and fire/emergency personnel and associated stations or other public facilities in the SCAG Region.	**MM 3.13-1a:** The project implementation agency shall ensure that prior to construction all necessary local and state road and railroad encroachment permits are obtained. The project implementation agency shall 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 should include the following requirements: 1. 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. 2. 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	The impact would be **less than significant** with mitigation.	LS (-)	LS (=)	LS (-)	LS (=)

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Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
	zone. 3. Scheduling of truck trips outside of peak morning and evening commute hours. 4. Limiting of lane closures during peak hours to the extent possible. 5. Usage of haul routes minimizing truck traffic on local roadways to the extent possible. 6. Inclusion of detours for bicycles and pedestrians in all areas potentially affected by project construction. 7. Installation of traffic control devices as specified in the California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones. 8. 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 shall 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. 9. Storage of construction materials only in designated areas. 10. Coordination with local transit agencies for temporary relocation of routes or bus stops in work zones, as necessary. **MM 3.13-1b:** The project implementation agency shall identify projects in the 2004 RTP that require police protection, fire service, and emergency medical service and shall coordinate with the local fire department and police department to ensure that the existing public services and utilities would be able to handle the increase in demand for their services. If the current levels of services at the project site are found to be inadequate, infrastructure improvements and/or personnel requirements for the appropriate public service shall be identified in each project's CEQA documentation.					
Impact 3.13-2: Construction necessary to implement the 2004 RTP may uncover and potentially sever underground utility lines (electric and natural gas).	**MM 3.13-2a:** Prior to construction, the implementing agency shall identify the locations of existing utility lines. The contractor shall avoid all known utility lines during construction.	The impact would be **less than significant** after mitigation.	LS (-)	LS (=)	LS (-)	LS (=)
Impact 3.13-3: Construction necessary to implement the 2004 RTP would affect the	**MM 3.13-3a:** Projects identified in the 2004 RTP that require solid waste collection will coordinate with the local public works department to ensure	The impact would be **less than**	LS (-)	LS (=)	LS (-)	LS (=)

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Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
demand for solid waste services in the SCAG region.	that the existing public services and utilities would be able to handle the increase. If the current infrastructure servicing the project site is found to be inadequate, infrastructure improvements for the appropriate public service or utility shall be identified in each project's CEQA documentation. **MM 3.13-3b:** Each of the proposed projects identified in the 2004 RTP shall comply with applicable regulations related to solid waste disposal. **MM 3.13-3c:** The construction contractor shall work with the respective County's Recycling Coordinator to ensure that source reduction techniques and recycling measures are incorporated into project construction. **MM 3.13-3d:** The amount of solid waste generated during construction will be estimated prior to construction, and appropriate disposal sites will be identified and utilized.	**significant** after mitigation.				
Cumulative Impact 3.13-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to a less than significant impact to the response times of police, fire, and emergency services in the SCAG Region.	Less than significant. None required.	The impact would not be cumulatively considerable and would be **less than significant.**	S (+)	S (+)	LS (=)	S (+)
Cumulative Impact 3.13-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable fire threat to development in the SCAG Region.	**MM 3.13-5a:** SCAG shall encourage local jurisdictions to strengthen and fully enforce fire codes and regulations. **MM 3.13-5b:** SCAG shall encourage the use of fire-resistant materials when constructing projects in areas with high fire threat. **MM 3.13-5c:** SCAG shall encourage the use of fire-resistant vegetation and the elimination of brush and chaparral in the immediate vicinity of development in areas with high fire threat. **MM 3.13-5d:** SCAG shall help reduce fire threats in the region as part of the Growth Visioning process and as policies in the update of SCAG's Regional Comprehensive Plan and Guide.	The impact would remain **significant** because development would occur in areas that have a high, very high or extreme threat of fire.	S (+)	S (+)	S (-)	S (-)
Cumulative Impact 3.13-6: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the staffing level of police and fire and emergency	**MM 3.13-6a:** Implementation agencies shall carefully evaluate the growth inducing potential of individual projects so that the full implications of the project are understood. Individual environmental documents shall quantify indirect impacts (growth that could be facilitated or induced) on public services and utilities to the extent feasible. Implementation agencies shall work with lead and responsible agencies to make any necessary adjustments to the applicable General Plan. Any such identified adjustment shall be communicated to SCAG.	The demand to hire and train approximately 22,000 police personnel and 7,000 fire and emergency personnel would remain a **significant**	S (=)	S (=)	S (=)	S (=)

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Table ES-1: 2004 RTP Impacts, Mitigation Measures and Comparison for Alternatives

IMPACT	MITIGATION MEASURES	2004 RTP SIGNIFICANCE AFTER MITIGATION	No Project	Modified 2001 RTP	PILUT 1 (Infill)	PILUT 2 (5th Ring)
services in the SCAG Region.		impact.				
Cumulative Impact 3.13-7: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the number of school-age children and the demand for school facilities in different parts of the SCAG Region.	**MM 3.13-7a:** Project implementation agencies shall undertake project specific review of the public utilities and services as part of project specific environmental review. For any identified impacts, project implementation agencies shall ensure that the appropriate school district has the school capacity, or is planning for the capacity, that the project will generate. Appropriate mitigation measures, such as new school construction or expansion, shall be identified. The project implementation agencies or local jurisdiction shall be responsible for ensuring adherence to the mitigation measures. SCAG shall be provided with documentation of compliance with any necessary mitigation measures.	The region's cumulative demand for approximately 1,000 new schools and approximately 50,000 new teachers would be a **significant** impact on public services.	S (=)	S (=)	S (=)	S (=)
Cumulative Impact 3.13-8: Implementation of the 2004 RTP in combination with potential changes to the growth distribution potentially would uncover and potentially sever underground utility lines (electric and natural gas).	**MM 3.13-8a:** Prior to construction, the implementing agency shall identify the locations of existing utility lines. The contractor shall avoid all known utility lines during construction.	The impact would be **less than significant.**	LS (=)	LS (=)	LS (=)	LS (=)
Cumulative Impact 3.13-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence would create a cumulatively considerable impact to the demand for solid waste services in the SCAG region.	**MM 3.13-9a:** SCAG shall encourage the CIWMB to continue to enforce solid waste diversion mandates that are enacted by the Legislature. **MM 3.13-9b:** SCAG shall encourage local jurisdictions to continue to adopt programs to comply with state solid waste diversion rate mandates and, where possible, shall encourage further recycling to exceed these rates. **MM 3.13-9c:** Future impacts related to management of solid waste shall be minimized through cooperation, information sharing, and program development during the update of the Integrated Solid Waste Management chapter of SCAG's RCPG and through SCAG's Energy and Environment Committee. SCAG shall consult with the CIWMB during this process.	While disposal capacity for the solid waste in 2030 has been identified, the cumulative impacts of collecting solid waste, transporting it to an available facility, and disposing of it would remain **significant**.	S (=)	S (=)	S (=)	S (=)

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1.0 INTRODUCTION

SUMMARY

The Southern California Association of Governments (SCAG) prepared this Program Environmental Impact Report (PEIR), pursuant to the California Environmental Quality Act (CEQA), for the 2004 Regional Transportation Plan (RTP or "the Plan"). The 2004 RTP is a long-range regional transportation plan that provides a blueprint to help achieve a coordinated and balanced regional transportation system. The RTP includes a policy element that is shaped by goals, policies, and performance indicators, an action element that identifies projects, programs, and implementation, and a description of regional growth trends that identifies future needs for travel and goods movement. The PEIR for the 2004 RTP serves as an informational document to inform decision-makers and the public of the potential environmental consequences of approving the proposed Plan, and it includes alternatives and mitigation measures designed to help avoid or minimize significant environmental impacts.

SCOPE AND METHODOLOGY

This PEIR fulfills the requirements of the CEQA. It is a programmatic document that provides a region-wide assessment of the potential significant environmental effects of implementing the projects, programs, and policies included in the proposed 2004 RTP. 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 in 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" (CEQA Guidelines Section 15168). A PEIR provides a regional consideration of cumulative effects and includes broad policy alternatives and program wide mitigation measures. This PEIR offers useful regional-scale analysis and mitigation for subsequent, site-specific environmental reviews conducted by implementing agencies as individual projects in the RTP are developed.

The focus of the environmental analysis in this PEIR is on the potential regional-scale and cumulative impacts of implementation of the Plan and the alternatives. The long-range planning horizon of more than 25 years necessitates that many of the highway, arterial, goods movement, and transit projects included in the Plan and the alternatives are identified at the conceptual level, and this document addresses environmental impacts to the level that they can be assessed without undue speculation. This PEIR acknowledges this uncertainty and incorporates these realities into the methodology to evaluate the environmental effects of the 2004 RTP, given its long-term planning horizon.

The potential significant environmental effects of implementing the Plan were identified by employing multiple analytical methods, including spatial analysis, transportation, noise, and air quality modeling, and other quantitative, ordinal, and qualitative techniques. Spatial analysis using Geographic Information Systems (GIS) was employed to evaluate the potential effects of

the major freeway, rail, and transit projects on numerous resource categories, such as land use, biological, and water resources. Sophisticated transportation, noise, and air quality simulation models were used to estimate the transportation, noise, and air quality impacts. Project and policy elements of the Plan and alternatives were incorporated into the modeling analysis and into the socioeconomic projections. The specific techniques used to evaluate each potential environmental effect are fully described in each resource section in Chapter Three of this document.

Baseline for Determining Significance

The PEIR must identify significant impacts that would be expected to result from implementation of the 2004 RTP. Significant impacts are defined as "a substantial or potentially substantial, adverse change in the environment" (Public Resources Code § 21068). Significant impacts must be determined by applying explicit significance criteria to compare the future Plan conditions to the existing environmental setting (CEQA Guidelines § 15126.2(a)). The existing setting is described in detail in each resource section of Chapter Three of this document, and represents the most recent, reliable, and representative data to describe current regional conditions. The criteria for determining significance are included in each resource section in Chapter Three of this document.

Comparison with the No Project

It is important to emphasize that urbanization in the SCAG region will increase substantially by 2030, with or without implementation of the 2004 RTP, and the CEQA-required environmental baseline of current conditions means that the impact assessment for many of the resource categories is cumulative in nature. Therefore, the analysis for each resource category also includes a direct comparison between the expected future conditions with the proposed Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the effects of implementing the 2004 RTP. A direct comparison between the proposed Plan and the No Project Alternative (defined below) is included in each resource section of Chapter Three of this document.

Proposed Plan and RTP EIR Alternatives

This PEIR evaluates a reasonable range of alternative regional transportation plans at an equal level of detail. The alternatives evaluated for the RTP Environmental Impact Report (EIR) include:

The proposed **Plan** is a blueprint to help achieve a coordinated and balanced regional transportation system. The Plan contains transportation and urban-form strategies that encourage compact growth, increased jobs/housing balance, and centers-based development, where feasible, in all parts of the region. The proposed Plan is fully described in the Project Description (Chapter Two of this document).

The **No Project** Alternative includes only those programmed transportation projects that received federal environmental clearance by December 2002. These reasonably foreseeable projects fulfill the definition of the mandated CEQA No Project Alternative (CEQA Guidelines § 15126.6(e)).

The **2001 RTP Modified** Alternative is an update of the adopted 2001 RTP to reflect the most recent growth estimates and transportation planning decisions and assumptions. This Alternative does not include urban-form strategies.

The **PILUT[1] 1 (Infill)** Alternative includes transportation and urban-form strategies that encourage a substantial portion of future growth to concentrate in existing urban centers through infill and redevelopment. This Alternative was designed by Fregonese Calthorpe Associates, SCAG's consultant, to reduce consumption of open space and habitat compared to the 2004 RTP. The PILUT 1 Alternative analyzed in this PEIR represents one potential vision of what could occur if the investments, urban form strategies, and goals of this Alternative were fully realized. Overall, impacts from the PILUT 1 Alternative would be less adverse than the Plan for each resource category, and the PILUT 1 alternative is the environmentally superior alternative.

The **PILUT 2 (Fifth Ring)** Alternative includes transportation and urban-form strategies that encourage a more decentralized urban form, with many compact, infill-intense urban centers throughout the region, resulting in an improvement in the jobs/housing balance in the outlying areas. Specifically, PILUT 2 focuses on improving and expanding infrastructure to utilize undeveloped land on the outer edges of the urbanized area. The PILUT 2 Alternative analyzed in this EIR represents a relatively compact, centers-based vision of what could occur if the investments, urban form strategies, and goals of this Alternative were fully realized.

Each alternative maintains a constant population total in 2030. The year 2030 growth projection for each Alternative differs from one another in two ways: 1) numbers of households and jobs and/or 2) distribution of people, households and jobs. The alternatives differ in terms of numbers of households and jobs because different investments in the alternatives would be expected to stimulate different levels of job creation and household development. The alternatives differ in terms of the distribution because the different transportation investments and urban form strategies would be expected to support different regional distributions of population, households, and employment.

Mitigation Measures

Mitigation measures proposed in the PEIR can be incorporated as policies into the Final 2004 RTP and into the updated Regional Comprehensive Plan, as appropriate and feasible. This integration of mitigation with regional plans would help ensure that feasible measures are

[1] The development of the 2004 RTP proceeded via an integrated process called Planning for Integrated Land Use and Transportation, or PILUT (see page 1-4). The regional growth visioning effort, known as Southern California Compass, guided this process and contributed two contrasting alternatives to the 2004 RTP that were analyzed in this PEIR, known as PILUT 1 and PILUT 2.

implemented at the project level. The implementing agencies shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Public Participation Process

SCAG has employed an innovative planning process that integrates transportation, land-use, and the environment. The process, known as PILUT—Planning for Integrated Land Use and Transportation—has been guided by Compass Growth Visioning, which is a participatory effort to help move Southern California towards a more sustainable future. Active participation from decision-makers, stakeholders, and the public is helping ensure that the process is relevant, inclusive, and useful.

As the Metropolitan Planning Organization (MPO), SCAG is required to implement a public involvement process to provide complete information, timely public notice, and full public access to key decisions and to support early and continuing public involvement in developing its regional plans. SCAG formally adopted a Public Participation Program in September 1993. Further, Title VI of the Civil Rights Act of 1964 and associated regulations and policies, including President Clinton's 1994 Executive Order 12898 on Environmental Justice, seek to assure that minority and low-income populations are involved in the planning process.

To fulfill these expectations, SCAG has used a combination of methods to stimulate public involvement. For the development of the 2004 RTP, the following public outreach methods have been used:

- Presentations on the RTP to established organizations throughout the Region
- Public workshops on the RTP throughout the Region
- Posting of all public outreach events via an Outreach calendar on the SCAG web site
- Direct outreach to minority and low-income populations
- Development of written and visual material to communicate the status and content of the RTP, including fact sheets and presentations.
- A public comment form used throughout the outreach program (in person, at public meetings and online)
- SCAG's web site, featuring a section dedicated to the 2004 RTP, including public meeting notices and the latest written information on the RTP
- Outreach to media including newspaper editorial boards, local television and radio stations, and ethnic media

- Selected radio and television appearances by elected officials and senior SCAG staff.

In addition to these targeted outreach efforts, all regular and special meetings of the RTP task forces, the Transportation and Communications Committee and the SCAG Regional Council are publicly noticed and opportunities for public comment are provided. Specific public comments on the RTP are being recorded and considered by SCAG in the development of the 2004 RTP.

In preparing the 2004 RTP, twelve task force committees (i.e. Aviation, Goods Movement, Transit, etc.), including several subcommittees, worked for more than two years to identify and refine Plan components. Each assigned task force committee, comprised of elected officials and regional stakeholders, held numerous meetings focused on development of specific transportation modes and transportation and urban form strategies.

ENVIRONMENTAL REVIEW PROCESS

Pursuant to CEQA Guidelines § 15082, the Notice of Preparation (NOP) for the 2004 RTP PEIR was released on June 9, 2003, and was received and circulated by the State Clearinghouse (SCH) on June 13, 2003. In response to NOP comments and a desire to encourage additional participation in the RTP EIR process, SCAG convened an RTP EIR scoping meeting on September 16th, and extended the comment period to end on September 25, 2003. A copy of the original NOP is included in the Technical Appendices. SCAG received dozens of comments on the NOP, which are included in Technical Appendices, and incorporated appropriate comments into the scope and methodology of the environmental analysis of this document. Continuing participation from interested agencies and individuals is encouraged throughout the RTP EIR process.

ORGANIZATION OF THE PEIR

This document is organized into eight Chapters plus an Executive Summary. The Executive Summary contains a review of the expected environmental impacts of implementation of the proposed 2004 RTP and the measures recommended to mitigate those impacts. The summary also includes a comparison of the expected environmental effects of each RTP EIR Alternative.

Chapter 1: Introduction. This Chapter is comprised of this introduction and analytical approach. It describes the purpose, scope and methodology of the PEIR, the Environmental Review Process, and an overview of the contents of the PEIR.

Chapter 2: Project Description. In this Chapter the background and location of the RTP is given including a review of the state and federal legislation that guides the process of developing the RTP. A discussion of the purpose and need for the 2004 RTP is presented with the projected growth in the region. An overview of the major components of the 2004 RTP is presented.

Chapter 3: Environmental Setting, Impacts, and Mitigation Measures. This Chapter identifies the setting for the 2004 RTP and provides a detailed analysis of the 2004 RTP for the region. It examines the environmental impacts of the 2004 RTP on the following categories: Land Use, Population, Employment and Housing, Transportation, Air Quality, Noise, Aesthetics and Views,

Biological Resources, Cultural Resources, Geology, Soils and Seismicity, Hazardous Materials, Energy, Water Resources, and Public Services and Utilities. For each of these environmental areas the analysis addresses the Environmental Setting, Regulatory Setting, Methodology, Significance Criteria, and Impacts and Mitigation Measures.

Chapter 4: Comparison of Alternatives. In this Chapter the RTP PEIR alternatives are evaluated and compared to the 2004 RTP for each resource area, such as land use and energy.

Chapter 5: Long Term Effects. This Chapter identifies the significant unavoidable environmental changes, significant irreversible impacts, growth-inducing impacts, and cumulative impacts of the 2004 RTP.

Chapter 6: Report Authors, Organizations, Persons Consulted, References, and Acronyms. This Chapter lists the contributors, references and the acronyms used in the preparation of this PEIR.

Chapter 7: Technical Appendices. This Chapter includes the NOP, Responses to Notice of Preparation, Air Emissions Tables, Biological Resource Tables - California Department of Fish and Game Natural Diversity Database (CNDDB), Water Resources Tables, Cultural Resources Data, and Sites in the SCAG Region Listed on the National Register of Historic Places.

Chapter 8: Figures. This Chapter includes all the Figures referenced throughout the PEIR.

2.0 PROJECT DESCRIPTION

BACKGROUND AND LOCATION

SCAG is the federally designated MPO under Title 23, United States Code (USC) 134(g)(1) for a six-county region that is comprised of the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. These counties are illustrated in Figure 2.1-1. The SCAG region includes 14 subregions, which are presented in Figure 2.1-1. This area totals approximately 38,000 square miles and 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. 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. This vast area includes millions of acres of open space and recreational land and a population of approximately 17 million people.

SCAG is required by federal and state mandates to update the long-range transportation plan for the region every three years. The SCAG region encompasses several federally designated non-attainment and maintenance areas for air quality standards. Under Section 176(c) of the Federal Clean Air Act [42 USC 7506(c)] the United States Department of Transportation (USDOT), Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) require that a non-attainment area submit a regional transportation plan every three years. The plan must conform with air quality requirements, and meet a number of other requirements, in order to continue receiving federal transportation funding. The state requirements under Section 65080 of the California Government Code generally mirror the federal requirements and require each Regional Transportation Planning Agency (RTPA) in urban areas to adopt and submit an updated RTP to the California Transportation Commission and the Department of Transportation (Caltrans) every three years.

PURPOSE AND NEED FOR ACTION

The purpose of the 2004 RTP is to provide a clear, long-term vision of the regional transportation goals, policies, objectives, and strategies for the SCAG region. The Plan provides an assessment of current and projected demand for travel and goods movement in the region, and includes actions to meet the region's mobility and accessibility needs. These actions must be within fiscal constraints and should promote consistency and coordination among state, regional, and local transportation plans. The development of the Plan provides an integrated, inclusive, and flexible process to help foster regional consensus on the social, economic, and environmental issues related to transportation planning in the SCAG region.

The need for the 2004 RTP arises from state and federal requirements and from the need for improvements to the regional transportation system. This need is driven by population growth and by maturation of the existing system requiring maintenance to preserve its long-term viability.

Over the next 25 years, the regional projections of growth forecast another 6 million people added to this large and diversifying area. The 2004 RTP is based on growth forecasts for the region in 2030, as shown in Table 2.1-1. By 2030 the population in the SCAG region is projected to grow to 22.9 million. This is a 38% increase from the population in 2000. The employment growth is forecast to be slightly lower at 36%. The number of households is projected to grow by 39%.

Table 2.1-1: 2004 RTP Population, Households, Employment in 2030 (in thousands)

Subregion	No Project Forecast			Plan		
	Population	Households	Employment	Population	Households	Employment
Imperial Assoc. of Gov.	270	84	110	270	84	111
North LA County	1,241	368	263	1,215	362	286
City of Los Angeles	4,425	1,649	2,213	4,413	1,663	2,265
Arroyo Verdugo Cities	399	149	264	398	151	271
San Gabriel Valley COG	2,479	731	941	2,472	738	951
Westside Cities COG	245	121	298	259	130	303
South Bay Cities COG	1,000	341	525	1,011	349	525
Gateway Cities COG	2,392	674	996	2,415	686	1,009
Las Virgenes-Malibu-Conejo COG	135	46	58	133	46	58
Orange County COG	3,553	1,098	1,922	3,553	1,152	1,989
Western Riverside County COG	2,330	792	805	2,330	808	856
Coachella Valley COG	716	252	248	716	258	266
SANBAG	2,713	842	1,071	2,713	898	1,179
Ventura County COG	993	329	455	993	335	467
SCAG Region	**22,890**	**7,476**	**10,168**	**22,890**	**7,660**	**10,536**

Source: No Project Forecast-incorporating local input from 90% of cities and subregions.
Plan Forecast-growth additions among subregions based on implementation of 2004 RTP.

Federal Guidelines (40 CFR 1502.13) require the preparation of a statement of purpose and need in conjunction with environmental documents prepared to meet the requirements of the National Environmental Policy Act (NEPA). In accordance with these guidelines, these statements are prepared to briefly specify the underlying purpose of the project and the need for the project to which the lead agency is responding in proposing actions and/or alternatives. Although adoption of the 2004 RTP is not subject to NEPA, SCAG has chosen to include this statement of purpose and need to enable proponents of specific projects included in the 2004 RTP to discuss the purpose and need for their individual projects in terms of the project's relationship to the 2004 RTP.

This statement of purpose and need has been prepared to identify the underlying purpose for adopting the 2004 RTP. This statement was not prepared to be a comprehensive statement of need for each individual RTP project. Where appropriate, this statement of need may be incorporated by reference in project-specific NEPA documents as provided in 40 CFR 1502.21.

The transportation planning process for the RTP is continuous as the region is constantly undergoing change. The 2004 RTP presents an assessment of the growth and economic trends in the SCAG region for the years 2000-2030 and provides strategic direction for investments during this time period. In order to update the Transportation Plan for the region, adjustments were required to the regional growth forecast, the airport strategy, the revenue forecast, and the plans and programs, as well as the incorporation of SCAG's on-going visioning process.

PROPOSED ACTION

SCAG is the federally designated MPO under Title 23, USC 134(g)(1), for the six-county region. SCAG is required by state and federal mandates to prepare a RTP every three years.

The 2004 RTP is a long-range regional transportation plan that provides a blueprint to help achieve a coordinated and balanced regional transportation system. Transportation projects in the SCAG region must be consistent with the RTP in order to receive federal funds. The RTP includes: a policy element that includes goals, policies, and performance indicators, an action element that identifies projects, programs, and implementation. In addition the RTP includes and a description of regional growth trends to help identify future needs for travel and goods movement.

Policy Element

The 2004 RTP was developed in accordance with seven goals for the region detailed in Table 2.1-2. These goals reflect the requirements of the USDOT as identified in Transportation Equity Act for the 21st Century (TEA-21) to consider seven planning factors and strategies in the preparation of RTPs. The goals are provided in no particular order.

Table 2.1-2: Adopted 2004 RTP Goals
1. Maximize mobility and accessibility for all people and goods in the region. 2. Ensure travel safety and reliability for all people and goods in the region. 3. Preserve and ensure a sustainable regional transportation system. 4. Maximize the productivity of our transportation system. 5. Protect the environment, improve air quality and promote energy efficiency. 6. Encourage land use and growth patterns that complement our transportation investments.
Source: SCAG. (2003). Regional Transportation Plan. Los Angeles, CA.

The goals demonstrate the need to balance many priorities in a cost-effective manner. The priorities for SCAG's regional investments are identified in the RTP as follows:

- The region's vast investments in multi-modal transportation infrastructure must be protected. This infrastructure is maturing and requires maintenance. The region cannot afford to replace the existing infrastructure and must protect it for future generations.

- A maturing system dictates an increased operational focus that leverages technology to maximize the system's productivity. This same investment will also minimize the variations of travel time, and increase reliability, due to incidents, weather, and other factors. The

region cannot substantially expand the transportation system, so the existing system must be utilized to its fullest, maximizing its reliability.

- Air quality for the region's residents must be improved and must meet federal regulations. Not doing so would undermine the health of our population and risk losing billions of dollars in federal funding to the region.
- The investments in the RTP must address travel safety and modal balance; recognize the importance of providing safe travel choices; meet the needs of transit dependents groups and the goods movement community; and provide connections among the highway system, ports, and airports.
- The RTP integrates urban-form strategies as a means to influence transportation performance and the economy. Without such integration, transportation needs in the future will outpace the ability to pay for them.
- The RTP must address these priorities in a cost-effective manner, so that mobility and accessibility are maximized for people and goods.

In order to achieve the goals described in Table 2.1-2 and reflect the priorities listed above, the 2004 RTP employs a series of policies. These policies were adopted by the SCAG Regional Council to guide the development of the 2004 RTP, and they are provided in Table 2.1-3.

Table 2.1-3: Adopted 2004 RTP Policies
1. Transportation investments shall be based on SCAG's adopted Regional Performance indicators. 2. Ensuring safety, adequate maintenance, and efficiency of operations on the existing multi-modal transportation system will meet RTP priorities and will be balanced against the need for system expansion investments. 3. RTP land use and growth strategies that differ from currently expected trends will require a collaborative implementation program that identifies required actions and policies by all affected agencies and sub-regions. 4. HOV gap closures that significantly increase transit and rideshare usage will be supported and encouraged, subject to Policy #1.
Source: SCAG. (2003). Regional Transportation Plan. Los Angeles, CA.

Performance Expectations

As directed by the first policy, performance measures play a critical role in the development of the RTP. Performance measures quantify regional goals and provide a way to evaluate progress over time. Assessing the degree to which the outcomes of the 2004 RTP investments meet the regional goals requires complex technical analysis. Performance measurement is a critical part of this analysis. The same measures will be used to monitor progress in meeting the performance expectations of the RTP. This monitoring allows the region to correct its course over time as lessons are learned and new trends are established. For the 2004 RTP, one or more

performance indicator for each goal was developed, tested, and evaluated. The resulting indicators are shown in Table 2.1-4.

Table 2.1-4: 2004 RTP Performance Outcomes, Measures and Plan Objectives

Performance Indicator	Performance Measure(s)	Definition	Performance Outcome
Mobility	Average Daily Speed	Speed - experienced by travelers regardless of mode.	11% improvement
	Average Daily Delay	Delay - excess travel time resulting from the difference between a reference speed and actual speed. Total daily delay and daily delay per capita are the indicators used.	37% improvement
Accessibility	Percent PM peak period work trips within 45 minutes of home.		Auto: 90%; Transit: 35%
	Distribution of work trips travel times.		Auto: 7% improvement; Transit: 6% Improvement
Reliability	Percent variation in travel time.	Day-to-day change in travel times experienced by travelers. Variability results from accidents, weather, road closures, system problems and other non-recurrent conditions.	10% improvement
Safety	Accident rates	Measured in accidents per million persons per mode.	0.5% improvement
Cost Effectiveness	Benefit-to-Cost (B/C) Ratio	Ratio of benefits of RTP investments to the associated investment costs.	$3.73
Productivity	Percent capacity utilized during peak conditions	Transportation infrastructure capacity and services provided. Roadway capacity: vehicles per hour per lane; Transit capacity: seating capacity utilized).	20% improvement in known bottle necks
Sustainability	Total cost per capita to sustain current system performance	Focus is on overall performance, including infrastructure condition. Preservation measure is a sub-set of sustainability.	$20 per capita, primarily in preservation costs.
Preservation	Maintenance cost per capita to preserve system at base year conditions	Focus is on infrastructure condition. Sub-set of sustainability.	Maintain current conditions.
Environmental	Emissions generated by travel	Measured/forecast emissions include CO, NO_X, PM_{10}, SO_X and VOC. CO_2 as a secondary measure to reflect greenhouse gas emissions.	Meets conformity requirements.

Source: SCAG. (2003). Regional Transportation Plan. Los Angeles, CA.

Action Element

The programs, projects, and implementation actions of the proposed RTP focus on system management, transportation demand management, strategic system expansion, and the land use-transportation connection.

System Management

A key component of System Management is protecting the investment in the current transportation infrastructure. The 2004 RTP sets aside over $6 billion of additional funds for infrastructure preservation and a total budget for Operations and Maintenance of approximately $83 billion. System management includes operational strategies (getting the most out of the existing system) and the Congestion Management System (CMS).

Transportation Demand Management

Transportation Demand Management (TDM) is the all-inclusive term given to a variety of measures used to improve the efficiency of the existing transportation system by managing travel demand. TDM strategies encourage the use of alternatives to the single occupant vehicle such as carpools, vanpools, bus, rail, bikes, and walking. Alternative work-hour programs, such as compressed workweek programs, flextime and work-at-home (telework and home-based businesses) are also TDM strategies, as are parking management tactics, such as preferential parking for carpools and parking pricing.

Strategic System Expansion / Capital Investments

Highway and Arterial Investments

The 2004 RTP contains a total of approximately $39 billion in public funding for proposed, committed, and programmed highway and arterial projects. This figure includes all capital improvements for the highway and arterial network, including mixed-flow lanes, High Occupancy Vehicle (HOV) lanes, interchanges, truck climbing lanes, and grade crossings, but it does not include maintenance. In total, the 2004 RTP includes approximately 2,700 new freeway/HOV lane miles, approximately 3,300 new arterial lane miles, and over 700 other new lane miles.

New lanes miles by county are summarized in Table 2.1-5.

Goods Movement

The focus of the goods movement improvements in the 2004 RTP is on truck traffic and freight rail. The regional transportation system will be challenged to accommodate the projected doubling of truck trips by 2030. The 2004 RTP acknowledges the need for strategies that will accommodate this future growth in truck traffic. While specific strategies and alignment determinations need further evaluation and consensus building, the Plan identifies corridor improvement needs for a number of corridors. The Plan also proposes adding a number of truck climbing lane improvements to the Region's highway system. The Regional Rail Capacity

Table 2.1-5: New Regional Lane Miles by County*

County	Imperial	Los Angeles	Orange	Riverside	San Bernardino	Ventura	SCAG total
Freeway Lane Miles	26	404	441	272	735	62	**1,940**
Principal Arterial Lane Miles	0	325	487	490	421	49	**1,772**
Minor Arterial Lane Miles	32	332	23	431	637	40	**1,495**
Major Collector Lane Miles	0	124	16	344	249	4	**737**
HOV Lane Miles	7	270	41	189	235	3	**745**
Freeway Link Lane Miles	0	17	9	3	8	0	**37**
Total Lane Miles in each County	65	1,472	1,017	1,729	2,285	158	**6,726**

Source: SCAG. (2003). Regional Travel Demand Model. Los Angeles, CA.
* This analysis does not include transit projects, MagLev projects, goods movement enhancement projects, or CETAP corridors with unknown routes.

Improvement Program proposes rail capacity improvements that include a total investment of $3.4 billion in Southern California: $1.2 billion for railroad infrastructure projects and approximately $2.2 billion in grade separation projects.

One strategy being explored is the concept of dedicated facilities to accommodate truck traffic. This system would comprise up to 140 center-lane miles of dedicated facilities from San Pedro Bay ports, through the East-West corridor and out in strategic distribution points northeast or southwest of the urbanized areas.

Maglev System

The Maglev system is the name for an elevated monorail using advanced magnetic levitation technology to move people and goods at a very high speed (up to 310 miles per hour (mph)), with a high degree of safety, comfort, and reliability. For the past four years, SCAG has been studying the feasibility of developing four Maglev corridors in the region:

- Los Angeles Airport (LAX) to March Inland Port in Riverside
- LAX to Palmdale
- Los Angeles Union Passenger Terminal (LAUPT) to Orange County (Anaheim)
- LAX to Orange County (Irvine Transportation Center).

If implemented as scheduled, the proposed system would include approximately 275 miles of Maglev corridors in the SCAG Region by 2030 that could move up to 500,000 riders a day.

Marine Ports

The ports of Los Angeles, Long Beach and Port Hueneme are planning to invest $6 billion over the next 25 years in infrastructure development programs. These efforts will include widening arterial streets, upgrading freeway ramps, separating railroad grade crossings, expanding rail yards, and adding intelligent transportation systems (ITS) to improve ground access management.

Inland Port

The 2004 RTP identifies an inland port that would serve as a cargo facilitation center where a number of import, export, manufacture, packing, warehousing, forwarding, customs, and other activities (with possible Foreign Trade Zone and/or Enterprise Zone inclusion) could take place in close proximity or even at the same site.

Aviation

SCAG has developed a new aviation demand forecast and plan that maximizes airport efficiency on a regional scale. This new aviation plan, termed the “Preferred Aviation Plan,” is a decentralized airport demand strategy to serve a forecasted regional demand of 170 million passengers in 2030, which results in an estimated economic benefit of $18 billion and 131,000 jobs over a constrained system.

Under the Preferred Aviation Plan the future demand for air travel and air cargo will be largely served by using available capacity at airfields located in the Inland Empire and north Los Angeles County. Table 2.1-6 presents the million annual passengers in 2030 for the proposed ten commercial airport system, which includes:

- Bob Hope (BUR)
- John Wayne (SNA)
- Los Angeles International (LAX)*
- Long Beach (LGB)
- March Inland Port (MAR)
- Ontario International (ONT)*
- Palm Springs (PSP)
- Palmdale Regional (PMD)*
- San Bernardino International (SBD)
- Southern California Logistics (SCL)

**Operated by Los Angeles World Airports*

Under the Preferred Aviation Plan air cargo service in the region will become more decentralized. LAX will handle only twenty-seven percent of air cargo for the region, compared to its current share of seventy-five percent. Ontario’s share of air cargo will increase from twenty-one to twenty-six percent. Other airports in Palmdale and the Inland Empire will ultimately handle a combined forty-one percent of the regional demand.

Table 2.1-6: 2002 and the 2030 Preferred Aviation Plan Air Passengers

	BUR	*JWA*	*LAX*	*LGB*	*MAR*[1]	*ONT*	*PSP*	*PMD*	*SBD*	*SCI*	*TOTAL*
Existing Conditions (2002)	4.6	7.9	56.2	1.4	0	6.5	1.1	0	0	0	77.8
Preferred Aviation Plan (2030)	**10.7**	**10.8**	**78.0**	**3.8**	**8.0**	**30.0**	**3.2**	**12.8**	**8.7**	**4.0**	**170.0**

[1]Air Force Reserve Activity at March is projected to remain at 51,426 annual operations. The primary objective of the commercial airport is cargo operations. SCAG projections assume commercial passenger service not yet contemplated by the March Joint Powers Commission. SCAG has a long standing policy to give priority to military and national defense needs

Public Transportation System

The 2004 RTP contains a total of approximately $25 billion in public funding for proposed, committed, and programmed transit projects, not including operation and maintenance. The goals of public transportation services are to ensure mobility for people without access to automobiles and to provide attractive alternatives for drive-alone motorists or discretionary riders. Strategies include a significant increase in service availability, major expansion in the use of bus rapid transit, and some re-structuring of service to ensure efficient utilization of available capacity. New rapid bus lines will be implemented on heavily-traveled corridors and many bus lines will be added or restructured to feed into the existing and proposed urban and commuter rail system.

The 2004 RTP calls for increased and better coordination between transit and land-use planning to increase ridership, reduce congestion, and improve air quality. The regional transit program calls for the local and regional transit and planning agencies to promote transit-oriented development cooperatively along the major transit corridors. The 2004 RTP also supports development of a flexible transit system enabling a strong transit linkage to transit activity centers.

Land Use-Transportation Connection

The following tenets were developed through SCAG's Growth Visioning process to serve as the foundation for the land use strategies in the 2004 RTP:

- Using in-fill where appropriate to revitalize underutilized development sites
- Focusing growth along transit corridors and nodes to utilize available capacity
- Providing housing opportunities near job centers, and job opportunities, when appropriate, in housing-rich communities
- Providing housing opportunities to match changing demographics

- Ensuring adequate access to open space
- Changing land use to correspond to the implementation of a decentralized regional aviation strategy and its consequent short- and long-term job creation
- Changing land use to correspond to the implementation of regionally significant major transportation projects and their consequent short- and long-term job creation
- Incorporating the local input and feedback on future growth received from 90 percent of the jurisdictions in the SCAG Region.

Proposed Plan and RTP EIR Alternatives

The alternatives evaluated for the RTP EIR include:

The **Proposed Plan**, which includes all of the elements summarized above, contains transportation/urban-form strategies that encourage compact growth, increased jobs/housing balance, and centers-based development, where feasible, in all parts of the region.

The **No Project** Alternative includes only those programmed transportation projects that have had federal environmental clearance by December 2002. These reasonably foreseeable projects fulfill the definition of the mandated CEQA No Project Alternative.

The **2001 RTP Modified** Alternative is an update of the adopted 2001 RTP to reflect the most recent growth estimates and transportation planning decisions and assumptions. This Alternative does not include urban-form strategies.

The **PILUT[1] 1 (Infill)** Alternative includes transportation investments and urban-form strategies that encourage a substantial portion of future growth to be concentrated in existing urban centers through infill and redevelopment. This alternative has been designed to reduce consumption of open space and habitat. Impacts of the PILUT 1 Alternative are less adverse than the Plan for each resource category, and, overall, the PILUT 1 alternative is the environmentally superior alternative.

The **PILUT 2 (Fifth Ring)** Alternative includes additional transportation investments and land use/transportation strategies that encourage growth toward a more decentralized urban form and an improvement in the jobs/housing balance in the outlying areas of the region. Specifically, PILUT 2 focuses on improving and expanding infrastructure to efficiently utilize undeveloped land on the outer edges of the urbanized area.

[1] PILUT is Planning for Integrated Land Use and Transportation.

Relationship to other EIRs

The 2004 RTP PEIR builds upon the analysis and mitigation in the 2001 RTP PEIR. The project list for the 2004 RTP is similar to the project list for the 2001 RTP, although some of the transportation projects from the 2001 RTP are now considered committed and are included in the No Project Alternative. The 2004 RTP PEIR evaluates the most recent projects and policies and provides more direct comparisons between current conditions and expected future plan conditions. The 2004 RTP PEIR includes additional analysis of cumulative, growth-inducing, and other indirect impacts.

Intended Uses of the PEIR

SCAG will use this PEIR as part of its review and approval of the 2004 RTP. The lead agencies for individual projects analyzed in this PEIR are required to prepare project level CEQA documents. The lead agencies for individual projects may use this PEIR as the basis of their regional and cumulative analysis. Moreover, it is the intent of SCAG that member agencies and others use the information contained within the PEIR in order to “tier” subsequent environmental documentation of individual projects in the region. Information from this document may also be incorporated in future County Congestion Management Programs and associated environmental documents, as applicable.

The 2004 RTP is intended to meet the changing socioeconomic, transportation infrastructure, financial, technological and environmental conditions of the region. Individual projects are preliminarily identified in the 2004 RTP; however, this PEIR is programmatic in nature and does not specifically analyze these projects. Project-level analyses will be prepared by implementing agencies on a project-by-project basis. Project specific planning and implementation undertaken by each implementing agency 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 proposed projects.

3.0 ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

INTRODUCTION

The following sections include an analysis, by resource area, of the 2004 Regional Transportation Plan on the environment in compliance with Section 15126.2(a) of the CEQA Guidelines. Each environmental resource section includes the following subsections:

- Environmental Setting;
- Regulatory Setting;
- Methodology;
- Significance Criteria; and
- Impacts and Mitigation Measures.

The environmental resource areas analyzed in this chapter include:

1) Land Use;
2) Population, Housing, and Employment;
3) Transportation;
4) Air Quality;
5) Noise;
6) Visual/Aesthetic Resources;
7) Biological Resources;
8) Cultural Resources;
9) Geology;
10) Hazardous Materials;
11) Energy;
12) Water Resources; and
13) Public Service and Utilities.

3.1 LAND USE

INTRODUCTION

This section describes the current land use in the SCAG region, identifies the potential impacts of the RTP on land use, includes mitigation measures for the impacts, and evaluates the residual impacts.

ENVIRONMENTAL SETTING

The SCAG region is comprised of six counties: Imperial, Orange, Los Angeles, Riverside, San Bernardino, and Ventura, and totals approximately 38,000 square miles in area. 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. 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. This vast area includes millions of acres of open space and recreational land and a population of 17 million people. Figures 3.1-1 and 3.1-2 depict the year 2000 land uses and the location of open space in the SCAG region.

Urban development in the SCAG region is 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. A map depicting city and county boundaries is provided as Figure 3.1-3.

Downtown Los Angeles is the largest urbanized center within the SCAG region. Other urbanized areas in Los Angeles County include Long Beach, Burbank, Glendale, Pasadena and Pomona. Office-core centers have emerged in Woodland Hills, Universal City, Westwood, around Los Angeles International Airport, 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.

Much of the development in San Bernardino and Riverside Counties has been on unincorporated county land. Areas that were rural twenty years ago are quickly becoming suburban. Riverside County has undertaken the Riverside County Integrated Project “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."[1] The County of Ventura and cities within the county have enacted SOAR (Save Open-Space and Agricultural Resources) initiatives that, in effect, draw urban growth boundaries as a way to channel future development.[2] These plans and initiatives will affect how land is used in the future.

Within the older central cities, communities are being revitalized as buildings are converted into artist lofts and apartments. As the population ages, as land becomes scarce, and as the ethnic make up of the region continues to change, developers have been turning to different types of housing and commercial developments, including townhouses, condominiums, apartments, and mixed-use developments that combine commercial and office uses. Residential units are appearing in traditionally commercial areas in Los Angeles, Long Beach, Santa Ana, and Pasadena. Senior housing located near amenities is gaining popularity. These adaptive reuse projects are not restricted to the largest cities, as projects in the Cities of Whittier and Ontario illustrate.[3] At the same time buildings are being recycled into new uses, there are also movements across the region to preserve historic structures and places. Increasingly, communities across the region are recognizing the value of different styles of architecture and the different features that make a place unique.

The following sections describe in detail six overarching land uses across the region: residential, commercial/office, industrial, institutional, agricultural, and open space land uses.

Residential

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, 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.

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1 Riverside County Integrated Project. (n.d.). *Why RCIP?* Retrieved April 14, 2003, from http://www.rcip.org/whyrcip.htm.

2 County of Ventura, Resource Management Agency, Planning Division. (n.d.). *SOAR questions and answers*. Retrieved April 14, 2003, from http://www.ventura.org/planning/pdf/02.pdf.

3 Southern California Association of Governments. 2002, June. *Redirecting sprawl within the walls: Adaptive reuse of buildings as one strategy to promote housing development*. Los Angeles, CA: Author.

Surrounding suburbs are predominantly low density housing tracts. Low density 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.

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.

Figure 3.1-4 displays the household density across the region. This map illustrates that the urban core is the densest part of the region and that suburban household densities also are prevalent through the region.

Commercial/Office

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. Los Angeles International Airport 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 I-5 and I-405) and the “Orange Crush” (intersection of Interstate 5 (I-5), State Route 22 (SR-22), and State Route 57 (SR-57)) in Orange County. Office developments also cluster around two of the major universities in the region, the Westwood area around the University of California-Los Angeles and the Irvine Spectrum near the University of California-Irvine.

Venture capital investment in high technology companies is clustered in five areas in the region: West Los Angeles, Irvine/South Orange County, the Conejo Corridor along Route 101 between Los Angeles and Ventura Counties, the South Bay of Los Angeles County, and the Pasadena area.[4]

Figure 3.1-5 depicts the employment density across the region. This map illustrates jobs located at major transportation intersections and along transportation corridors.

Industrial

The focal points of industrial activity in the region are the Ports of Los Angeles and Long Beach. Put together, these adjacent ports represent the third busiest shipping port in the world. The industrial activity spreads north from the ports along the Alameda Corridor to downtown Los

[4] Southern California Association of Governments. (2002, June). *Venture capital investment in the SCAG region – Year 2001 review.* Los Angeles, CA: Author.

Angeles 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. 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 Los Angeles International Airport. A third port in the region, Port Hueneme in Ventura County, also has industrial activity around it. Along the Mexican border, the three ports of entry in Imperial County see 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. Across southern Los Angeles County, oil wells and oil refineries remain. Oil drilling and refining also takes place in Orange County near Huntington Beach and Newport Beach. Significant mining operations take place in the eastern portion of Imperial County. Wind energy generation facilities are located in the San Gorgonio Pass between Banning and Palm Springs. Industrial land uses can be identified on Figure 3.1-1.

Institutional

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 ten active duty military facilities in the SCAG region are listed below.[5]

- 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

[5] California military bases: Bases by county. (n.d.). Retrieved September 4, 2003, from U.S. Senator Barbara Boxer Web site: http://www.senate.gov/member/ca/boxer/general/CAbases/county.html.

- Naval Warfare Assessment Station, Corona
- Naval Weapons Station Seal Beach
- Point Mugu Naval Air Weapons Station
- Twenty-nine Palms Marine Corps Combat Center

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. In the Antelope Valley, a large portion of land is dedicated to airport uses at Palmdale Airport. LAX is another major institutional land use. 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). California Polytechnic University at Pomona 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 region.

Agricultural

There are substantial areas of agriculture in the region. Table 3.1-1 indicates the rank and top three products of the SCAG counties in 2001, and Figure 3.1-6 shows the location of prime agriculture and grazing lands. All six counties in the SCAG region are in the top half of California counties in agricultural products.[6] Agriculture remains an important part of the regional economy and is the focus of Imperial County's economy.

Open Space

Much of the SCAG region is protected as open space. The federal Bureau of Land Management owns the vast majority of land in the eastern portion of the region. There are national parks and forests as well as state, regional, and local parks throughout the region. Figure 3.1-2 shows the open space and recreation lands in the SCAG region.

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[6] California Agricultural Statistics Service. (n.d.) *Agricultural overview 2001*. Retrieved July 21, 2003, from ftp://www.nass.usda.gov/pub/nass/ca/AgStats/2001-ovw.pdf.

Table 3.1-1: Statewide County Rank, Total Value of Agricultural Production, and Leading Commodities, 2001			
Rank	**County**	**Total Value (In Thousands $)**	**Leading Commodities**
9	Riverside	$1,124,908	Milk, Nursery Products, Table Grapes
10	Ventura	$1,053,636	Strawberries, Lemons, Celery
11	Imperial	$1,010,321	Cattle, Alfalfa, Head and Leaf Lettuce
14	San Bernardino	$703,465	Milk, Cattle and Calves, Replacement Heifers
20	Orange	$319,053	Nursery Stock and Cut Flowers, Strawberries, Tomatoes
27	Los Angeles	$258,260	Nursery Plants, Root Vegetables, Peaches

Source: California Agricultural Statistics Service. (n.d.). *Agricultural overview 2001*. Retrieved July 21, 2003, from ftp://www.nass.usda.gov/pub/nass/ca/AgStats/2001-ovw.pdf

The Los Padres National Forest occupies the northern half of Ventura County. The Angeles National Forest bisects Los Angeles County. Orange County has the Cleveland National Forest along its eastern spine. The state parks along the Pacific Ocean and the public beaches along its shore are important areas of open space for the region.

The San Bernardino National Forest, Joshua Tree National Park, Death Valley National Park, the Mojave Preserve, and large swaths of land owned by the U.S. Bureau of Land Management (BLM) protect the majority San Bernardino County as open space.

The Salton Sea is the region's largest inland water body, straddling the Riverside County-Imperial County line. Part of Anza Borrego Desert State Park, the largest California State Park, is located in Imperial County.

Vacant land that is not designated as open space is scattered throughout the region but exists primarily in the inland portions of the region. With the expanding population, vacant land that is suitable for development is rapidly being consumed.

REGULATORY SETTING

The regulatory setting describes the federal, state, and local agencies that have jurisdiction over land use. The regulations pertinent to land use that each of these agencies enforce are also described.

Federal Agencies and Regulations

All Federal Agencies

The Environmental Protection Agency (EPA) implements NEPA. NEPA provides information on expected environmental effects of federally funded projects. Impacts on land uses and conflicts with state, regional, or local plans and policies are among the considerations included in the regulations. The regulations also require that projects requiring NEPA review seek to avoid or minimize adverse effects of proposed actions and restore and enhance environmental quality as much as possible.

United States Bureau of Land Management (BLM)

The BLM manages approximately 10 million acres of the total SCAG region, primarily in the eastern portion of the region. The California Desert Conservation Area Plan is used to manage BLM controlled areas. The BLM also implements biological resource management policies through its designation of Areas of Critical Environmental Concern.

United States Forest Service (USFS)

The USFS manages approximately 2.3 million acres of national forests in the SCAG region. The four national forests in the region are the Angeles National Forest, San Bernardino National Forest, Los Padres National Forest, and the Cleveland National Forest.

United States Fish and Wildlife Service (USFWS)

The USFWS administers the Federal Endangered Species Act (FESA) and designates critical habitat for endangered species. The USFWS also manages the National Wildlife Refuges in the SCAG region. These include the Salton Sea National Wildlife Refuge (in Imperial County) and Hopper Mountain National Wildlife Refuge (in Ventura County).

United States Army Corps of Engineers (USACE)

Among its responsibilities, the USACE administers Section 404 of the Clean Water Act (CWA), which governs specified activities in waters of the United States, including wetlands. In this role, the USACE requires that a permit be obtained if a project would place structures, including dredged or filled materials, within navigable waters or wetlands, or result in alteration of such areas.

National Park Service (NPS)

The NPS manages national parks and wilderness areas. Two national parks and one wilderness area are located in the SCAG region: Joshua Tree National Park, a portion of Death Valley National Park, and the Santa Monica Mountains National Recreation Area.

U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS)

The NRCS maps soils and farmland uses to provide comprehensive information necessary for understanding, managing, conserving and sustaining the nation's limited soil resources. The NRCS manages the Farmland Protection Program, which provides funds to help purchase development rights to keep productive farmland in agricultural uses.

State Agencies and Regulations

California Department of Conservation

In 1982, the State of California created the Farmland Mapping and Monitoring Program within the California Department of Conservation to carry on the mapping activity from the NRCS on a continuing basis. The California Department of Conservation administers the California Land Conservation Act of 1965, also known as the Williamson Act, for the conservation of farmland and other resource-oriented laws.

California Coastal Commission

The California Coastal Commission plans for and regulates development in the coastal zone consistent with the policies of the California Coastal Act. The Commission also administers the federal Coastal Zone Management Act in California.[7] As part of the Coastal Act, cities and counties are required to prepare a local coastal program (LCP) for the portion of its jurisdiction within the coastal zone. With an approved LCP, cities and counties control coastal development that accords with the local coastal plan. If no local coastal plan has been approved, the Coastal Commission controls coastal development.[8]

California Department of Transportation (Caltrans)

The Caltrans jurisdiction includes right-of-ways of state and interstate routes within California. Any work within the right-of-way of a federal or state transportation corridor is subject to Caltrans regulations governing allowable actions and modifications to the right-of-way.

Caltrans includes the Division of Aeronautics, which is responsible for airport permitting and establishing a county Airport Land Use Commission (ALUC) for each county with one or more public airports. ALUCs are responsible for the preparation of land use plans for areas near aviation facilities.

California Department of Forestry and Fire Protection (CDF)

The CDF reviews and approves plans for timber harvesting on private lands. In addition, through its responsibility for fighting wildland fires, the CDF plays a role in planning development in forested areas.

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7 The other federally designated agency is the Bay Conservation and Development Commission (BCDC) which operates outside of the SCAG region.

8 Fulton, W. 1999. *Guide to California planning*. Point Arena, CA: Solano Press Books.

California Department of Parks and Recreation (CDPR)

The CDPR manages and provides sites for a variety of recreational and outdoor activities. The CDPR is a trustee agency that owns and operates all state parks and participates in land use planning that affects state parkland.

California Department of Fish and Game (CDFG)

The land use mandate of the CDFG is to protect rare, threatened, and endangered species by managing habitat in legally designated ecological reserves or wildlife areas. CDFG reserves located in the SCAG region include the Bolsa Chica Ecological Reserve (Orange County) and Imperial State Wildlife Area (Imperial County).

Public Agencies

Public agencies are entrusted with compliance with CEQA and its provisions are enforced, as necessary, through litigation and the threat thereof. CEQA defines a significant effect on the environment as a substantial, or potentially substantial, adverse change in the physical conditions within the area affected by the project. Land use is a required impact assessment category under CEQA.

Local Agencies and Regulations

Southern California Association of Governments (SCAG)

As related to land use, SCAG is authorized to undertake the intergovernmental review for federal assistance and direct federal development pursuant to Presidential Executive Order 12,372. Pursuant to CEQA (Public Resource Code Sections 21083 and 21087 and CEQA Guidelines Sections (15206 and 15125(b)), SCAG reviews projects of regional significance for consistency with regional plans. SCAG is also responsible for preparation of the Regional Housing Needs Assessment (RHNA), pursuant to California Government Code Section 65584(a). SCAG's RHNA provides a tool for coordinating local housing development strategies.

SCAG's *Regional Comprehensive Plan and Guide (RCPG)*[9] is intended to provide a framework for decision making by local governments regarding growth and development. The Plan proposes strategies for local governments to use on a voluntary basis to reconcile local needs with state and federal planning requirements.

Local Agency Formation Commissions

The local agency formation commission (LAFCO) is the agency in each county that has the responsibility to create orderly local government boundaries, with the goal of encouraging

9 Southern California Association of Governments (SCAG). March 1999. Regional comprehensive plan and development guide. Los Angeles, CA: SCAG.

"planned, well-ordered, efficient urban development patterns," the preservation of open-space lands, and the discouragement of urban sprawl.[10] While LAFCOs have no direct land use authority, their actions determine which local government will be responsible for planning new areas. LAFCOs address 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.

General Plans

The most comprehensive land use planning for 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. The general plan contains goals and policies concerning topics that are mandated by state law or which 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 are public facilities, parks and recreation, community design, and growth management, among others. City and county general plans must be consistent with each other. County general plans must cover areas not included by city general plans (i.e., unincorporated areas).

Specific and Master Plans

A city or county may also provide land use planning by developing community or specific plans for smaller, more specific areas within their jurisdiction. 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.

Zoning

The city or county zoning code is the set of detailed requirements that implement the general plan policies at the level of the individual parcel. The zoning code presents 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.

Growth Control

Local growth control endeavors to manage community growth by various methods, including tying development to infrastructure capacity, limiting the number of new housing units, setting limits on the increase of commercial square footage, and the adoption of urban growth boundaries, among others.

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10 Governor's Office of Planning and Research. 1997. *LAFCOs, general plans, and city annexations*. Sacramento, CA: Author.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts of implementation of the proposed Plan on existing land uses and existing land use plans and policies.

Comparison with the No Project

The analysis of land use includes a comparison of the expected future conditions with the proposed Plan to the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the effects of the Plan.

Determination of Significance

This analysis evaluates land uses most likely to be affected by the construction and operation of the highway, freight rail, and transit projects in the proposed Plan and implementation of transportation and urban form policies and programs included in the Plan. GIS was used to overlay proposed Plan highway, freight rail, and transit alignments and the associated growth projection onto 2000 aerial photography of the existing land uses for the SCAG region. In addition to this GIS analysis, land use effects of arterial investments and undefined alignments were also considered. The significance criteria below were applied to determine if resulting changes in land use would be significant. The methodology for determining the significance of these impacts compares the future Plan conditions to the existing setting, as required in CEQA Guidelines Section 15126.2(a). In addition, general plan maps submitted by SCAG member cities and counties were analyzed to evaluate potential conflicts with General Plan land uses.

SIGNIFICANCE CRITERIA

A significant impact is defined as “a substantial or potentially substantial, adverse change in the environment” (Public Resource Code § 21068). The proposed Plan would have a significant impact if implementation would:

- Result in a substantial loss or disturbance of existing prime farmland, grazing land, open space, or recreation land; or
- Result in inconsistency with applicable adopted land use plans and policies.

IMPACTS AND MITIGATION MEASURES

Implementation of the 2004 RTP would affect land use. Expected significant impacts include a loss of prime farmlands, grazing lands, open space and recreation lands, inconsistencies with general plans, and cumulatively considerable changes to land use and the intensity of land use.

Short-term construction related impacts and long-term or permanent displacement or offsite impacts from new facilities would potentially occur as a result of implementation of the 2004 RTP. Below are descriptions of the types of direct impacts foreseeable from new transportation projects

proposed in the 2004 RTP. Indirect impacts due to the changes in population distribution expected to occur due to the 2004 RTP's transportation investments and transportation and land use policies also are discussed under cumulative impacts.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.1-1: Implementation of the proposed 2004 RTP transportation projects would result in substantial disturbance and/or loss of prime farmlands or grazing lands throughout the six-county SCAG region.

As shown in Figure 3.1-1: General Land Use Patterns and Figure 3.1-6 Prime Agricultural Farm Land and Grazing Land the six-county SCAG region contains areas used for agricultural purposes. These areas are interspersed throughout urban areas and located in less developed portions of the counties. Development of highway, arterial, and transit projects proposed under the 2004 RTP would result in the disturbance and/or loss of a substantial portion of these designated agricultural areas. SCAG's GIS was used to analyze where major freeway, rail, and transit projects identified in the 2004 RTP intersect areas used for agriculture. A 300-foot buffer (150 feet on either side) was drawn around the freeway, rail, and transit projects in the 2004 RTP to compute the number of agricultural acres potentially affected by the projects in the 2004 RTP. The results of this analysis using the data from Figure 3.1-6 Prime Agricultural Farmland and Grazing Land show that construction and operation of freeway, rail, and transit projects in the 2004 RTP would potentially affect up to 6,500 acres of prime farmland and up to 7,700 acres of grazing lands.

In addition, the 2004 RTP includes arterial investments, goods movement capacity enhancements, and the Maglev system, which were not included in the GIS analysis summarized above. The alignments of these improvements have not been developed to the point that they can be reliably overlaid onto agricultural lands using GIS. However, these projects would potentially cause additional adverse effects on agricultural lands.

In total, the 2004 RTP includes approximately 3,300 new arterial lane miles, some of which would potentially disturb or consume agricultural lands in the region.

One strategy being explored in the 2004 RTP is the concept of dedicated facilities to accommodate truck traffic. This system would comprise upwards of 140 center-line miles of dedicated facilities along alignments extending from the San Pedro Bay ports, through the East-West Corridor, and out to strategic distribution points northeast or southwest of the urbanized areas. These facilities would traverse through grazing lands and, depending on the alignment, potentially would traverse through prime agricultural lands. The final alignment likely would be adjacent to or concurrent with existing alignments, and thus, the adverse effects on agricultural lands would be minimized.

The proposed Maglev system would be located in Los Angeles, Orange, Riverside and San Bernardino Counties. The initial operating segment would be between West Los Angeles and Ontario International Airport. Future segments would extend the Maglev system to Los Angeles International Airport, Palmdale Airport, March Inland Port, and Irvine by way of Long Beach and John Wayne Airport. Another line would connect Anaheim with Los Angeles Union Station. [11] In total, the proposed Maglev route in 2030 would be approximately 275 miles, which potentially would traverse through prime agricultural lands and grazing lands. The final alignment is expected to follow existing transportation right-of-way, thus minimizing adverse effects on agricultural lands. Furthermore, the Maglev system runs on an elevated track that potentially would consume or disturb less land. The Maglev system would have approximately fourteen stations and would also require land for maintenance and power generation. The location of the stations and other facilities associated with operating the Maglev system potentially would consume or disturb agricultural land.

Additional agricultural lands would be affected by the growth associated with the 2004 RTP. The effect of growth and urban development on agricultural lands is addressed in the Cumulative Impacts section of this chapter.

The loss and disturbance of agricultural lands would be a significant impact of the 2004 RTP.

Mitigation Measures

MM 3.1-1a: Individual projects must be consistent with Federal, State, and local policies that preserve agricultural lands and support the economic viability of agricultural activities, as well as policies that provide compensation for property owners if preservation is not feasible.

MM 3.1-1b: For projects impacting agricultural land, project implementation agencies shall contact the California Department of Conservation and each county's Agricultural Commissioner's office to identify the location of prime farmlands and lands that support crops considered valuable to the local or regional economy. Impacts to such lands shall be evaluated in project-specific environmental documents. The analysis shall use the land evaluation and site assessment (LESA) analysis method (CEQA Guidelines §21095), as appropriate. Mitigation measures may include conservation easements or the payment of in-lieu fees.

MM 3.1-1c: Project implementation agencies shall consider corridor realignment, buffer zones and setbacks, and berms and fencing where feasible, to avoid agricultural lands and to reduce conflicts between transportation uses and agricultural lands.

MM 3.1-1d: Prior to final approval of each project and when feasible and prudent, the implementing agency shall establish conservation easement programs to mitigate impacts to prime farmland.

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[11] SCAG has completed several studies on different segments of the Maglev system. They are available at the SCAG website: http://www.scag.ca.gov/maglev/

MM 3.1-1e: Prior to final approval of each project, the implementing agency shall to the extent practical and feasible, avoid impacts to prime farmlands or farmlands that support crops considered valuable to the local or regional economy.

MM 3.1-1f: Prior to final approval of each project, the implementing agency shall encourage enrollments of agricultural lands for counties that have Williamson Act programs, where applicable.

Significance after Mitigation

This impact would remain **significant** because it is anticipated that substantial loss and disturbance of agricultural land would occur.

Impact 3.1-2: Implementation of the projects included in the 2004 RTP would result in a substantial loss or disturbance of existing open space and recreation lands.

As shown in Figure 3.1-2: Open Space and Recreation Lands in the SCAG Region, the six-county SCAG region contains areas of open space and recreation lands interspersed throughout the region. These pockets of open space vary in size and location. Open space and recreation lands include public parks, recreational facilities, and areas planned for such uses.

SCAG's GIS was used to analyze where major freeway, rail, and transit projects in the 2004 RTP intersect areas designated for open space and recreation lands. A 300-foot buffer (150 feet on either side) was drawn around the freeway, rail, and transit projects in the 2004 RTP to compute the number of open space and recreation lands potentially affected by the projects in the 2004 RTP. The results of this analysis (Figure 3.1-1 Existing Land Use Patterns) show that the 2004 RTP would potentially affect approximately 1,400 acres of open space and recreation lands.

In addition, the 2004 RTP includes arterial investments, goods movement capacity enhancements, and the Maglev system, which were not included in the GIS analysis summarized above. The alignments of these improvements have not been developed to the point that they can be reliably overlaid onto open space and recreation lands using GIS. However, these projects would potentially cause additional adverse effects on open space and recreation lands. See Impact 3.1-1 for a further discussion of these RTP elements.

Additional agricultural lands would be affected by the growth associated with the 2004 RTP. The effect of growth and urban development on agricultural lands is addressed in the Cumulative Impacts section of this chapter.

The loss and disturbance of open space and recreation lands would be a significant impact of the 2004 RTP.

Mitigation Measures

MM 3.1-2a: Project implementation agencies shall ensure that projects are consistent with Federal, State, and local plans that preserve open space.

MM 3.1-2b: Project implementation agencies shall consider corridor realignment, buffer zones and setbacks, and berms and fencing where feasible, to avoid open space and recreation land and to reduce conflicts between transportation uses and open space and recreation lands.

MM 3.1-2c: Project implementation agencies shall identify open space areas that could be preserved and shall include mitigation measures (such as dedication or payment of in-lieu fees) for the loss of open space.

MM 3.1-2d: Prior to final approval of each project, the implementing agency shall conduct the appropriate project-specific environmental review, including consideration of loss of open space. Potential significant impacts to open space shall be mitigated, as feasible. The project implementation agencies or local jurisdiction shall be responsible for ensuring adherence to the mitigation measures prior to construction.

MM 3.1-2e: For projects that require approval or funding by the USDOT, project implementation agencies shall comply with Section 4(f) of the USDOT Act.

MM 3.1-2f: Future impacts to open space and recreation lands shall be avoided through cooperation, information sharing, and program development during the update of the Open Space and Conservation chapter of SCAG's RCPG and through SCAG's Energy and Environment Committee.

Significance after Mitigation

Implementation of the 2004 RTP would result in a potentially substantial loss and/or disturbance of open space and recreation lands. This impact would remain **significant**.

Impact 3.1-3: The proposed 2004 RTP contains transportation projects and strategies to distribute the future growth in the region. These projects and strategies potentially would result in inconsistencies with currently applicable adopted local land use plans and policies.

The 2004 RTP contains transportation projects and strategies to help more efficiently distribute population, housing, and employment growth. These transportation projects and strategies are generally consistent with the county and regional level general plan data available to SCAG. However, general plans are updated on an inconsistent basis and not all cities have general plans. Some of the general plans that SCAG relied upon when creating the 2004 RTP are not current and may not reflect current planning policy or practice. In addition, the RTP's 2030 horizon year is beyond the timeline of even the most recent general plans. It is likely that over the

period of the 2004 RTP, transportation projects and resulting growth will be inconsistent with currently adopted general plans. With these limitations, there will be inconsistencies with general plans and potentially a significant effect. However, it is the goal of regional planning tools such as the RTP to set goals for efficient regional development. These goals would likely be reflected in general plans when they are revised and updated.

Mitigation Measures

MM 3.1-3a: SCAG shall encourage through regional policy comments that cities and counties in the region provide SCAG with electronic versions of their most recent general plan and any updates as they are produced.

MM 3.1-3b: SCAG shall encourage through regional policy comments that cities and counties update their general plans at least every ten years, as recommended by the Governor's Office of Planning and Research.

MM 3.1-3c: SCAG shall work with its member cities and counties to ensure that transportation projects and growth are consistent with the RTP and general plans.

MM 3.1-3d: Planning is an iterative process and SCAG is a consensus building organization. SCAG shall work with cities and counties to ensure that general plans reflect RTP policies. SCAG will work to build consensus on how to address inconsistencies between general plans and RTP policies.

Significance after Mitigation

In some instances, currently adopted general plans will need to be updated, especially general plans that are known to be out of date. Thus, the impact would remain potentially **significant**.

Cumulative Impacts

A cumulative impact consists of an impact that is created as a result of the combination of the 2004 RTP together with other projects causing related impacts. In addition to the impacts described above, the urban development and growth that would be accommodated by the transportation investments in the 2004 RTP would have the following additional cumulative impacts:

Cumulative Impact 3.1-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to land use and would change the intensity of land use in some areas.

The construction and operation of the transportation projects in the 2004 RTP would affect a number of land uses. Table 3.1-2 shows the estimated acreage of different land use categories that occur within 150 feet of either side of the reasonably foreseeable transportation alignments included in either the Plan or the No Project Alternative. The land uses affected by the No Project Alternative will be discussed in the Comparison with the No Project section of this chapter.

Table 3.1-2: Land Uses Affected by Major Highway, Transit, and Freight Rail Projects in the 2004 RTP

Land Use	Plan Alternative Approximate Acres Affected	No Project Alternative Approximate Acres Affected
Commercial	8,000	2,600
Extraction	400	40
Grazing Land	7,700	1,800
Industrial	6,000	1,000
Low Density Residential	11,900	3,600
Medium to High Density Residential	5,900	2,200
Open Space & Recreation	1,400	300
Prime Farmland	6,500	1,300
Public Facilities & Institutions	2,300	800
Rural Density Residential	900	300
Transportation & Utilities	8,800	2,400
Vacant	21,300	4,500
Water & Floodways	80	10

Source: SCAG GIS Analysis, 2003.

In addition to these direct impacts on land use, the urban footprint of new development supported by the 2004 RTP is expected to consume 500,000 – 700,000 acres of vacant, undeveloped land by 2030.

The 2004 RTP includes policies that would influence the distribution of the growing population. The land use measures included in the 2004 RTP would encourage use of underutilized land, and in some cases would help increase the intensity of the use to achieve mobility and other benefits. Underutilized land is land that is built at a density less than permitted by general plans. However, stable single family neighborhoods would be protected, regardless of whether or not they were built at the maximum allowable density, as indicated by general plans.

The innovative strategies and policies put forth in the 2004 RTP would affect current land use but would generally stay within the parameters of existing general plans. Implementation of these strategies under the 2004 RTP could result in changes in land uses by changing concentrations of development throughout the six-county region. The RTP will provide a blueprint to revitalize areas through its land use strategies.

The contribution of the 2004 RTP to impacts on existing land use would be cumulatively considerable, as it would result in changes to existing land use, including prime farmlands, grazing lands, and open space and recreational lands.

Mitigation Measures

Mitigation Measures 3.1-1a through 3.1-1f, 3.1-2a through 3.1-2e, and 3.1-3a through 3.1-3d would be applied to mitigate this cumulative impact in addition to the following measure.

MM 3.1-4a: SCAG's Growth Visioning program and the forthcoming Regional Growth Vision will be used to build a consensus in the region to support changes in land use to accommodate future population growth while maintaining the quality of life in the region.

Significance after Mitigation

In order to accommodate six million more people as projected by 2030, the region will need to change land uses and increase the intensity of some existing land use. The cumulative impact would remain **significant**.

Comparison with the No Project Alternative

In the No Project alternative the population of the SCAG region grows by 6 million people, however no regional transportation investments are made above the existing programmed projects.

Direct Impacts

The No Project Alternative includes fewer transportation projects than the 2004 RTP. Thus, the No Project Alternative would be expected to directly consume or disturb fewer acres of agricultural lands and open space than the Plan Alternative. The No Project Alternative potentially would affect 1,300 acres of prime agricultural land and 1,800 acres of grazing land, compared with 6,500 acres of prime agricultural land and 7,700 acres of grazing land under the Plan Alternative. The transportation projects included in the No Project Alternative would be located within 150 feet of 300 acres of designated open space, compared with 1,100 acres of open space in the Plan Alternative. In addition, because the No Project Alternative includes only transportation projects that already have environmental clearance and includes no growth strategies, there would be less potential for conflict with general plans than under the Plan Alternative.

The Plan would have a greater impact than the No Project Alternative for Impacts 3.1-1 through 3.1-3.

Indirect Impacts

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan Alternative. However, the Plan Alternative includes land use measures that would help reduce the consumption and disturbance of agricultural lands, vacant lands, open space, and recreation lands. These mitigating measures are absent in the No Project Alternative. The proposed Plan Alternative also includes additional transportation improvements that facilitate access to agricultural lands, vacant lands, open space, and recreation lands that would be less accessible with the No Project Alternative. This improved accessibility under the Plan Alternative would help facilitate population and economic growth in areas of the region that are currently not developed. Furthermore, the proposed Plan Alternative includes additional households and jobs associated with the economic benefits of implementing the Plan that would consume vacant land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would consume similar acreage of vacant land.

The Plan Alternative's cumulative impacts to land use would be approximately the same as those of the No Project Alternative.

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3.2 POPULATION, HOUSING, AND EMPLOYMENT

INTRODUCTION

This section describes the current population, housing, and employment of the SCAG region, identifies potential impacts of the 2004 RTP on these three factors, includes mitigation measures for the impacts, and evaluates the residual impacts.

REGIONAL SETTING

The SCAG region is the second most populous metropolitan region in the nation after the New York City region. The U.S. Census reported the 2000 population of the 188 cities and six counties that make up the SCAG region was 16,516,006. The California State Department of Finance estimates that the region now has 17,439,156 people.[1] About 6% of the national population, or 1 in 17 people, live in the SCAG region. Table 3.2-1 shows the total population of the region, by decade, and the region's percentage of the total national population. Between 1990 and 2000, the consolidated metropolitan statistical area (CMSA) of the region added more people than any other CMSA in the country, as shown in Table 3.2-2.

Table 3.2-1: SCAG Population and Share of U.S. Population, 1900-2000

Decade	Population	Share of U.S. Population
1900	250,187	0.3%
1910	661,907	0.7%
1920	1,193,705	1.1%
1930	2,657,969	2.2%
1940	3,312,460	2.5%
1950	4,997,221	3.3%
1960	7,823,721	4.4%
1970	10,055,351	4.9%
1980	11,589,678	5.1%
1990	14,640,832	5.9%
2000	16,516,006	5.9%

Source: U.S. Census

The region added almost 1.9 million people between 1990 and 2000. The ring of counties around Los Angeles posted large decade-to-decade growth rates. Riverside County grew 32% to 1.6 million people, San Bernardino County 20.5% to 1.7 million and Orange County 18.1% to 2.8 million. All outstripped growth rates in Los Angeles County — up 7.4% to 9.5 million people.

[1] State of California, Department of Finance. (2003, May). *E-5 city/county population and housing estimates, 2003, revised 2002 and revised 2001, with 2000 DRU benchmark.* Sacramento, CA: Author.

Table 3.2-2: Population Growth in the 10 Largest Consolidated Metropolitan Statistical Areas, 1990-2000

Consolidated Metropolitan Statistical Area	Population Growth, 1990-2000	National Rank in Total Population
Los Angeles	1,842,116	2
New York	1,650,216	1
Dallas	1,184,519	9
Houston	938,440	10
Chicago	917,720	3
Washington, DC	881,020	4
San Francisco	786,051	5
Boston	363,697	7
Philadelphia	295,526	6
Detroit	269,257	8

Source: U.S. Census.

Despite its modest rate of growth, more people were added in Los Angeles County than any other county in the region, nearly 650,000. The California Department of Finance estimates that the SCAG region has continued to grow since the 2000 Census, adding another 900,000 people between April 1, 2000, and July 1, 2003. Table 3.2-3 shows population figures for the SCAG counties in 1990, 2000, and 2003, as well as the absolute increase and percentage increase in population from 1990 to 2003.

Table 3.2-3: Population Growth for SCAG Counties, 1990 - 2003

County	1990 Total Population	2000 Total Population	2003 Population Estimate	1990-2003 Population Increase	1990-2003 Percentage Increase
Imperial	109,303	142,361	150,909	41,606	38%
Los Angeles	8,863,164	9,519,338	9,979,618	1,116,454	13%
Orange	2,410,556	2,846,289	2,978,816	568,260	24%
Riverside	1,170,413	1,545,387	1,705,537	535,124	46%
San Bernardino	1,418,380	1,709,434	1,832,966	414,586	29%
Ventura	669,016	753,197	791,310	122,294	18%
SCAG Region	14,640,832	16,516,006	17,439,156	2,798,324	19%

Source: 1990 and 2000 Census. State of California, Department of Finance, E-5 City/County Population and Housing Estimates, 2003, Revised 2002 and Revised 2001, with 2000 DRU Benchmark. Sacramento, California, May 2003.

Population growth resulted from large net increases in three population groups: aging Baby Boomers, their young children (the “Echo-boomers”), and immigrants, mostly from Mexico, Central America, and Southeast Asia. Births to current residents of the region accounted for most of the population gain in the region as births outnumbered deaths for two-thirds of the population gain, while immigration accounted for the rest.

Ethnic Composition

The population of the SCAG region is very diverse, with no ethnic majority. The rise and shift in population make-up in Southern California has been due to an increase of Hispanic and Asian

population relative to White and African-American populations during the last decade. Increasing birth rates among Hispanics rather than an influx of new immigrants caused much of the increase. A Hispanic population plurality of 41% emerged by 2000 as a result of a sizable population increase in this ethnic group. The next largest population groups were a shrinking White population at 39%, Asians at 14%, and African-Americans at 7%. Table 3.2-4 compares the ethnic composition of the SCAG region from 1990 to 2000.

Table 3.2-4: Ethnic Composition Comparison for SCAG Counties, 1990-2000

County	Hispanic	White	Asian/Pacific Islander	African-American	Native American	Other*
Imperial						
1990	71,365	32,016	1,752	2,573	1,527	70
2000	102,817	28,768	2,446	5,148	1,736	1,446
% increase	44%	-10%	40%	100%	14%	1966%
Los Angeles						
1990	3,306,116	3,634,722	924,291	946,862	30,165	21,008
2000	4,242,213	2,959,614	1,124,569	901,472	25,609	265,861
% increase	28%	-19%	22%	-5%	-15%	1166%
Orange						
1990	556,957	1,557,956	244,407	38,825	9,534	2,877
2000	875,579	1,458,978	383,810	42,639	8,414	76,869
% increase	57%	-6%	57%	10%	-12%	2572%
Riverside						
1990	302,286	757,709	39,162	60,063	8,965	2,228
2000	559,575	788,831	55,199	92,403	10,135	39,244
% increase	85%	4%	41%	54%	13%	1661%
San Bernardino						
1990	373,632	864,830	55,710	110,352	10,837	3,019
2000	669,387	752,222	78,154	150,201	9,804	49,666
% increase	79%	-13%	40%	36%	-10%	1545%
Ventura						
1990	175,414	442,015	32,570	14,884	3,478	655
2000	251,734	427,449	39,452	13,490	3,177	17,895
% increase	44%	-3%	21%	-9%	-9%	2632%
Region						
1990	4,785,770	7,289,248	1,297,892	1,173,559	64,506	29,857
2000	6,701,305	6,415,862	1,683,630	1,205,353	58,875	450,981
% increase	40%	-12%	30%	3%	-9%	1410%

Note: These increases partially result from changes in ethnic classification between the 1990 and 2000 Census.
Source: 1990 and 2000 U.S. Census.

Age Distribution

The Baby-Boom population in the SCAG region is aging and is beginning to retire. The percentage of people considered the working age population (ages 20-64) is decreasing in every county except in Imperial County and has shrunk for the region overall as well. Table 3.2-5 compares the age distribution of the SCAG Counties between 1990 and 2000.

Table 3.2-5: Age Distribution of the SCAG Counties, 1990 and 2000

County	Age Category	% Population 1990	% Population 2000
Imperial	Under 19	37.6	34.6
	Age 20-64	52.2	55.4
	Over 65	10.2	10.0
Los Angeles	Under 19	29.4	31.0
	Age 20-64	60.9	59.3
	Over 65	9.7	9.7
Orange	Under 19	27.6	29.7
	Age 20-64	63.2	60.4
	Over 65	9.2	9.9
Riverside	Under 19	31.2	33.3
	Age 20-64	55.6	54.0
	Over 65	13.2	12.7
San Bernardino	Under 19	33.9	35.5
	Age 20-64	57.3	56.0
	Over 65	8.8	8.6
Ventura	Under 19	30.5	31.3
	Age 20-64	60.1	58.6
	Over 65	9.4	10.2
SCAG Region	Under 19	29.8	31.5
	Age 20-64	60.4	58.6
	Over 65	9.8	9.9

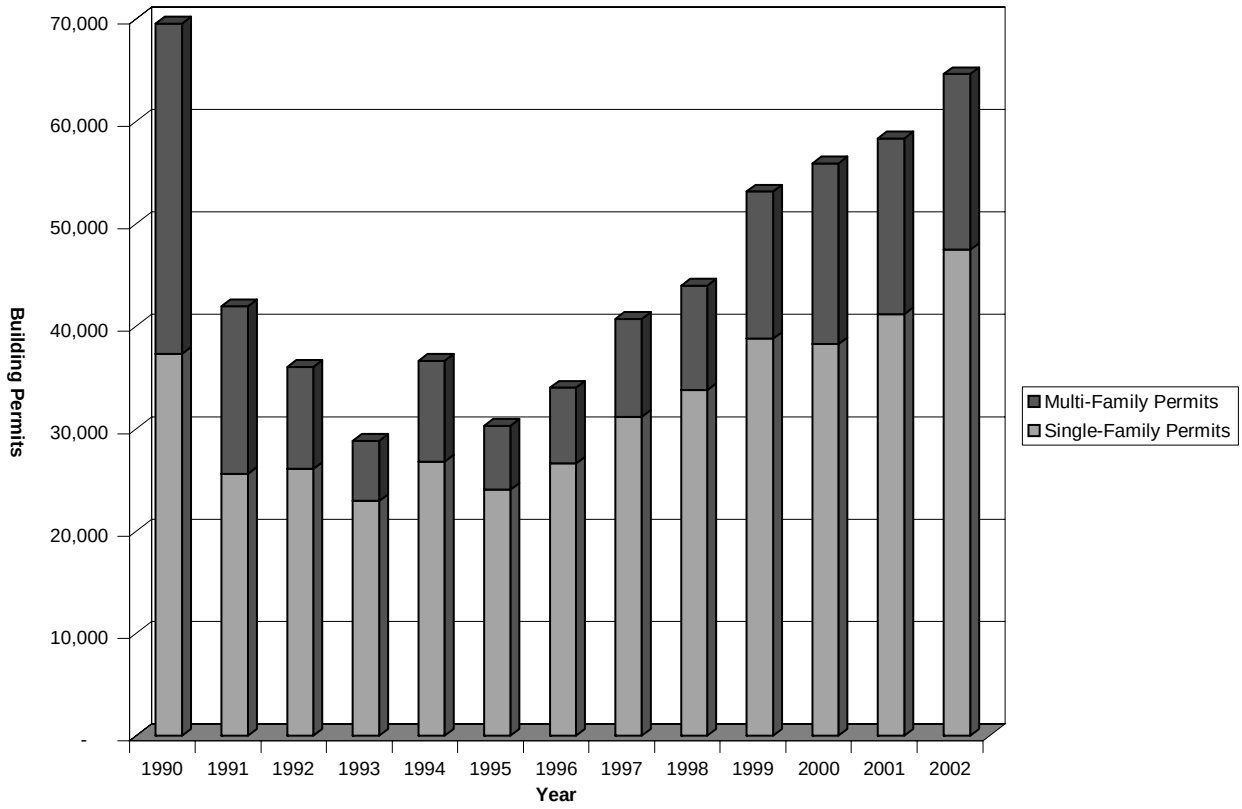
Source: 1990 and 2000 Census.

The percentage of the population over age 65 is expected to increase as more and more Baby Boomers reach retirement age. With the percentage of the population 19 and younger also increasing, the percentage of working age people will decrease. The dependent age populations may cause an increase in the demand for services such as health care, transit, and education.

Housing

The 2000 census counted 5.7 million housing units in the region, an increase of 400,000 units, or 6.5%, in the 1990s. Residential permit issuance in the region lagged well behind its population growth. However, permit issuance, despite the recent year to year losses in employment, increased 55% between 1998 and 2002, rising from 43,975 units annually to 68,157 in 2002 (see Table 3.2-6). The last year that building activity approached this level was 1990. In the 1998-2002 period, multifamily development doubled while single family permit levels rose by 40%.

Table 3.2-6: Building Permits Issued in the SCAG Region: 1990-2002



Source: Building data for individual counties by month [Data file]. Burbank, CA: Construction Industry Research Board.

In contrast to the 1990s, the region's housing stock grew by almost 20% in the 1980s (872,000 units). Vacant units fell sharply during the 1990s as building permit issuance lagged both population and household growth. Vacancy rates dropped to severe deficit levels in most of the urban areas of the region, while housing inventories were high in outlying, urbanizing areas. Generally, vacancy levels are considered insufficient if there are less then 5% vacancies of rental units and less than 1.5% vacancies of owner units. Vacancies in each county are presented in Table 3.2-7. The housing stock in the region continues to age. Nearly 35% of the region's housing stock is now over 50 years old, making reinvestment, recycling, and historic preservation important issues in many communities.

Homeownership

Homeownership levels from 1990 to 2000 increased in all counties of the region. The homeownership rate still lags the national rate (66%) in Imperial, Los Angeles, Orange, and San Bernardino Counties. Only Riverside and Ventura Counties have homeownership rates that exceed the national average. Differences remain between ethnic groups and a wide gap in homeownership levels exists geographically between south Los Angeles County and the rest of the region, particularly the Inland Empire, which saw ownership levels increase. When

Table 3.2-7: Owner and Rental Vacancy Rates in the SCAG Region, 2000		
County	**Vacancy Rate (%)**	
	Owner	**Rental**
Imperial	1.4	4.9
Los Angeles	1.6	3.3
Orange	0.9	3.0
Riverside	2.5	7.2
San Bernardino	3.1	7.3
Ventura	0.9	2.8

Source: United States Census Bureau. (2000). *Summary file 1* [Data file]. Available from Census Bureau Web site, http://www.census.gov/

comparing homeownership in the nine largest metropolitan regions in the nation, the region's homeownership rate of 55 percent in 2000 ranked 8th, above only the New York City region. Among the largest metropolitan regions, Southern California had the highest percentage of owner and renter households with housing cost greater than 30 percent of the household income. Table 3.2-8 displays the homeownership levels in the counties of the SCAG region.

Table 3.2-8: Homeownership Rates		
Region	**1990**	**2000**
Imperial County	57.6%	58.3%
Los Angeles	48.2%	49.7%
Orange County	60.1%	61.4%
Riverside County	67.4%	68.9%
San Bernardino County	63.3%	64.5%
Ventura County	65.5%	67.6%
California	53.8%	56.9%
United States	63.9%	66.2%

Source: Census 2000 Summary File 1, 1990 Census Summary Tape File 1.

Housing Affordability

During the last decade, median home values in the state and most populous areas of the region have risen due to construction activity lagging population growth, low inventory and historically low interest rates. The average home price exceeds $325,000, more than double the national average. The percentage of the population that can afford an average priced home in different counties in the region is much lower than the national average but is generally higher (Orange County being the exception) than the California state average. This is displayed in Table 3.2-9.

Household Size

The average number of people per household increased by nearly 12% during the last decade. In contrast, new household formations -rose only 8.4% and the housing stock increased 6.5%.

Table 3.2-9: Affordability Index (Percentage of Residents Who Can Afford Average Price Home)			
Region	**1990**	**2000**	**2003**
US	50%	53%	56%
California	23%	31%	28%
Los Angeles County	20%	34%	29%
Orange County	22%	27%	23%
Riverside/San Bernardino Counties	38%	47%	45%
Ventura County	21%	32%	30%

Note: Data for Imperial County unavailable.
Source: California Association of Realtors.

Because the rate of population growth exceeded household growth, the average household size in the region increased from 2.98 in 1990 to 3.16 in 2000. The increase in household size was in contrast to a decade-to-decade drop in the number of people per household experienced by the nation overall. The rise in average household size was in both owner and renter groups. Table3.2-10 shows the average persons per household for the region. Contrary to the decreasing trend at the national level, the percentage of housing considered crowded increased in every county in the region from 1990 to 2000. Almost 20 percent of the households in the region lived in crowded housing in 2000, compared to only 6 percent for the nation.

Table 3.2-10: Average Persons per Household			
County	**1990**	**2000**	**2003**
Imperial	3.26	3.42	3.38
Los Angeles	2.91	3.14	3.09
Orange	2.87	3.06	3.06
Riverside	2.85	3.09	3.04
San Bernardino	2.97	3.17	3.26
Ventura	3.02	3.11	3.08
SCAG Region	2.98	3.16	3.15

Source: State Department of Finance. Table 1: E-5 Estimates

Employment

The SCAG region has almost seven million jobs and represents a market of more than $500 billion in personal income that ranks as the world's tenth largest economy. The region has a diversified economic base centered upon the largest port complex in the country, the nation's largest entertainment and tourism sector, the country's largest diversified manufacturing center, and participates in fast growing and high paying professional services, biotechnology, and design markets. Trade and goods movement, both waterborne and airborne, have been important engines of economic growth and change. Freight and industrial corridor development to support the transportation of goods has become an increasingly important feature of the regional economy that has been supported by an inland valley boom in industrial and warehouse growth.

In the past few years, the Inland Empire (Riverside and San Bernardino Counties) has led the state and region in job and housing growth.

During the 1990s, the region lost manufacturing jobs, particularly in aerospace, and gained jobs in the international trade, imports, and service sectors, particularly high paying new economy jobs and low paying restaurant and retail employment. Business services, direct international trade services, tourism, health services, motion pictures/television production, apparel and textile industries together grew by more than 500,000 jobs during the decade. Small and medium-size companies created the majority of these jobs. The total value of international trade through the Los Angeles Customs District more than doubled, from $130 billion to $285 billion. By the end of the 1990s, the region's economic base was much more diversified than it was at the beginning. However, Los Angeles County, the traditional job center of the region, still has not recovered all of the jobs it lost through recent recessions and has a lower job total today than it did in 1990. Table 3.2-11 shows the employment figures for the region.

Table 3.2-11: Total Wage and Salary Employment

County	Wage and Salary Employment		
	1990	2000	2002
Imperial	44,900	50,400	50,700
Los Angeles	4,149,500	4,079,800	4,041,500
Orange	1,179,000	1,396,500	1,410,700
Riverside/San Bernardino	735,200	1,010,100	1,078,700
Ventura	247,000	294,300	299,000
SCAG Region	6,355,600	6,831,100	6,880,600

Source: State of California, Employment Development Department, Labor Market Information. (2003, Aug. 25). *Industry employment & labor force - by annual average - March 2002 benchmark*. Sacramento: Author.

Unemployment

The 2002 unemployment rate (6.1%) in the region was higher than the national average (5.8%) but lower than the state average (6.7%). Unemployment rates ended lower in the region in 2000 (4.9%) than was the case in 1990 (5.6%). Imperial County's unemployment rate is one of the highest in the state. The unemployment rate is displayed in Table 3.2-12.

Table 3.2-12: Unemployment Rate in the SCAG Region

County	1990	2000	2002
Imperial	25.4%	26.3%	19.2%
Los Angeles	5.9%	5.3%	6.8%
Orange	3.5%	2.5%	4.1%
Riverside/San Bernardino	6.3%	5.1%	5.9%
Ventura	5.7%	4.5%	5.5%
SCAG Region	5.6%	4.9%	6.1%

Source: State of California, Employment Development Department, Labor Market Information. (2003, Aug. 25). *Industry employment & labor force - by annual average - March 2002 benchmark*. Sacramento: Author.

Income

Among the nine largest metropolitan regions in the nation, the SCAG region has the lowest average payroll per job. When comparing per capita income among the seventeen largest metropolitan regions in the nation, the region dropped from the fourth highest in 1970, to seventh highest in 1990, and sixteenth highest in 2002. Based on the 2000 Census, close to one in six persons of all ages and one in five children under eighteen in Southern California live in poverty. Unlike Southern California, many of the largest metropolitan regions made improvements in reducing poverty rates during the 1990s, particularly for children under eighteen.

The region lost ground to other major metropolitan areas in terms of both relative economic performance and competitiveness as measured by per capita, median, and poverty income levels. Median income dropped over the decade of the 1990s, falling from $47,760 in 1990 (after adjusting for year 2000 dollars) to $45,903, or a drop of 4%. Poverty levels also increased significantly. One in three persons (625,000 people) that were added to the region during the last decade had an income below the poverty level. At the same time, the median income of households in the highest income quintile was $120,000. This was nearly double the median income of the next highest income group ($70,000). The divide between the richest and poorest households in Southern California widened during the 1990s. Poverty levels have increased steadily over the past 30 years in the region, rising from about 10 percent in 1970 to nearly 16 percent in 2000.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts of implementation of the proposed 2004 RTP on population, housing, and employment and the associated effects on the physical environment.

Comparison with the No Project

The analysis of population, housing, and employment includes a comparison of the expected future conditions with the proposed Plan to the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the effects of the Plan.

Determination of Significance

The methodology for determining the significance of these impacts compares the existing conditions to the future Plan conditions, as required in CEQA Guidelines Section 15126.2(a).

The CEQA guidelines require “growth-inducing” impacts to be discussed. Such impacts occur when the Plan could foster economic or population growth, or remove obstacles to growth. Growth inducing impacts include changes in both the amount and distribution of growth. This section analyzes the potential growth-inducing impacts of the Plan.

Projects in the proposed Plan were reviewed to identify those that may involve right-of-way acquisition and the potential for displacement of homes and businesses. GIS was used to overlay proposed Plan highway, freight rail, and transit alignments and the associated growth projection onto 2000 aerial photography of the existing land uses for the SCAG region. Each project that might require acquisition of right-of-way was reviewed to generally identify locations that had the potential for large displacement of existing homes and businesses.

The potential for community disruption was assessed by evaluation of the location of proposed projects in relation to surrounding land uses and community development. Highway and transit extensions and major interchange projects were assumed to have a higher potential than other projects to disrupt or divide existing communities as they would involve the creation of new roadways or transitways. 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.

These evaluations are based on general descriptions of projects in the proposed Plan and are regional and programmatic in nature. This section is intended to serve as a resource to local jurisdictions in the preparation of project specific environmental documentation and any necessary mitigation measures.

SIGNIFICANCE CRITERIA

The proposed Plan would have a significant impact if implementation would:

- Induce substantial population growth to areas of the region;
- Require the acquisition of rights-of way, which displace a substantial number of existing businesses or homes;
- Separate residences from community facilities and services, restrict access to commercial or residential areas, or eliminate community amenities.

IMPACTS AND MITIGATION MEASURES

Implementation of the 2004 RTP would affect population, households, and employment. Expected significant impacts include substantial induced population growth in areas of the region, right-of-way acquisitions that will displace a substantial number of existing businesses or homes, separation of residences from community facilities and services, and a cumulatively considerable impact on vacant natural land.

Both short-term construction related impacts and long-term or permanent displacement or offsite impacts from new facilities would occur as a result of implementation of the Plan. Indirect impacts due to the changes in growth distribution expected to occur due to the Plan's transportation investments and transportation and land use policies are also identified.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the

mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through its Intergovernmental Review Process.

Impact 3.2-1: Implementation of the 2004 RTP would facilitate substantial population growth to certain vacant areas of the region.

The CEQA statute and CEQA guidelines require "growth-inducing" impacts to be identified. Such impacts occur when the Plan could foster economic or population growth or remove obstacles to growth. Growth inducing impacts include changes in both the amount and distribution of growth. This section analyzes the potential growth-inducing impacts of the Plan.

As discussed in Chapter 2.0 Project Description, each Alternative, including the Plan, is associated with a 2030 growth projection. This growth projection represents the expected amount and distribution of people, households, and jobs that would occur in 2030 if the policies and investments included in each Alternative were implemented. The population, households, and employment expected in 2030 with implementation of the proposed Plan are provided in Table 3.2-13. The data are provided by SCAG subregion in order to illustrate the effects of the Plan on population, household, and employment distribution.

Table 3.2-13: Population, Households, and Employment in the SCAG Region, by Subregion, Year 2000 and 2030 Plan and No Project

Subregion	2000 Population	2030 Plan Population	2030 No Project Population	2000 Households	2030 Plan Households	2030 No Project Households	2000 Employment	2030 Plan Employment	2030 No Project Employment
Arroyo Verdugo Cities	335,400	397,600	398,500	127,500	150,600	149,300	201,800	271,200	263,500
City of Los Angeles	3,788,800	4,413,400	4,424,600	1,295,500	1,663,000	1,648,600	1,814,300	2,265,200	2,212,900
Coachella Valley Council of Governments	354,200	715,600	715,700	123,400	258,300	252,300	138,400	265,700	248,300
Gateway Cities Council of Governments	1,983,700	2,414,700	2,392,200	569,000	686,300	674,000	805,800	1,008,800	996,000
Imperial Valley Association of Governments	147,000	269,900	269,900	39,500	83,700	83,700	55,400	111,100	110,100
Las Virgenes Malibu Council of Governments	83,500	133,400	135,300	29,900	46,000	46,100	44,900	58,300	57,900
North Los Angeles County	512,400	1,215,100	1,241,300	161,100	362,300	367,700	179,000	286,300	262,600
Orange County Council of Governments	2,867,200	3,552,700	3,552,700	939,700	1,151,800	1,098,500	1,514,600	1,988,900	1,921,600
San Bernardino Associated Governments	1,813,500	2,471,900	2,479,100	544,900	738,200	730,900	755,100	950,900	941,300
San Gabriel Valley Council of Governments	1,718,400	2,713,200	2,713,200	530,500	897,700	842,200	594,900	1,178,900	1,070,700
South Bay Cities Council of Governments	842,400	1,010,900	1,000,100	297,200	348,800	340,700	416,400	524,800	525,400
Ventura County	758,100	993,200	993,200	244,500	334,700	328,500	337,200	466,900	455,200
Western Riverside Council of Governments	1,205,400	2,329,700	2,329,700	386,000	808,200	792,200	388,100	856,000	804,500
Westside Cities	220,400	258,800	244,700	112,000	130,300	121,400	236,200	303,300	297,500
SCAG Region	**16,630,300**	**22,890,100**	**22,890,100**	**5,400,600**	**7,660,000**	**7,476,100**	**7,482,100**	**10,536,300**	**10,167,500**

Source: Southern California Association of Governments. (2003, October). *Draft 2004 regional transportation plan*. Los Angeles, CA: Author.

The transportation investments and urban form strategies in the proposed Plan would foster substantial economic and household growth and would remove some obstacles to growth in some areas of the region. Specifically, the improved accessibility from the Plan would help facilitate population and economic growth to areas of the region that are currently not developed. Thus, implementation of the proposed Plan would result in a significant growth inducing effect.

The indirect adverse effects of this growth on the physical environment are evaluated in the cumulative impacts section of the land use section and other applicable resource categories.

Mitigation Measures

MM 3.2-1a: SCAG shall work with its member agencies to implement growth strategies to create an urban form designed to utilize the existing transportation networks and the transportation improvements contained in the 2004 RTP, enhancing mobility and reducing land consumption.

Significance after Mitigation

The policies included in the Plan seek to direct growth in a way that is efficient for both mobility and land consumption. However, implementation of the Plan would help distribute growth to certain vacant areas of the region. Thus, the impact would remain **significant**.

Impact 3.2-2: Implementation of the 2004 RTP projects would require the acquisition of rights-of-way that displace a substantial number of existing homes and businesses.

Development of highway, arterial and transit projects proposed under the 2004 RTP would result in the disturbance and/or loss of land currently used for residential or business purposes. SCAG's GIS was used to analyze where major freeway, rail, and transit projects in the 2004 RTP intersect areas used for residential or business purposes. A 150-foot potential impact zone was drawn around the freeway, rail, and transit projects in the 2004 RTP to compute the number of acres that could potentially be affected by the construction and operation of projects in the 2004 RTP. Table 3.2-14 shows the current residential and business land uses that are located within 150 feet of either side of the RTP freeway, transit or freight rail projects.

Table 3.2-14: Residential and Business Land Uses within 150-Foot Radius of 2004 RTP Freeway, Transit, and Freight Rail Projects

Land Use	Acres
Low Density Residential	11,900
Medium to High Density Residential	5,900
Rural Residential	900
Commercial	8,000
Extraction	400
Industrial	6,000

Source: SCAG GIS Analysis, 2003.

In addition, the 2004 RTP includes arterial investments, goods movement capacity enhancements, and the Maglev system, which were not included in the GIS analysis summarized above. The alignments of these improvements have not been developed to the point that they can be reliably overlaid onto land use maps using GIS. However, these projects would potentially cause additional adverse effects on the displacement of homes and businesses. In total, the 2004 RTP includes approximately 3,300 new arterial lane miles that would potentially displace homes and businesses in the region.

One strategy being explored in the2004 RTP is the concept of dedicated facilities to accommodate truck traffic. This system would comprise upwards of 140 center-line miles of dedicated facilities along alignments extending from the San Pedro Bay ports, through the East-West Corridor, and out to strategic distribution points northeast or southwest of the urbanized areas. These facilities, depending on the alignment, potentially would traverse through lands currently used for residential and business purposes. The final alignment likely would be

adjacent to or concurrent with existing alignments, thus the adverse effects on displacing homes and businesses would be minimized.

The proposed Maglev system would be located in Los Angeles, Orange, Riverside and San Bernardino Counties. The initial operating segment would be between West Los Angeles and Ontario International Airport. Future segments would extend the Maglev system to Los Angeles International Airport, Palmdale Airport, March Inland Port, and Irvine by way of Long Beach and John Wayne Airport. Another line would connect Anaheim with Los Angeles Union Station.[2] In total, the proposed Maglev route in 2030 would be approximately 275 miles, which potentially would traverse through lands used for residential and business purposes. The final alignment is expected to follow existing transportation right-of-way, thus minimizing adverse effects on homes and businesses. Furthermore, the Maglev system runs on an elevated track that potentially would displace homes or businesses. The Maglev system would have approximately fourteen stations and would also require land for maintenance and power generation. The location of the stations and other facilities associated with operating the Maglev system potentially would displace homes or businesses.

Additional residential and business lands would be affected by the growth associated with the 2004 RTP. The effect of growth and urban development on agricultural lands is addressed in the Cumulative Impacts section of this chapter.

Displacement of existing homes and businesses would be a significant effect of the 2004 RTP.

Mitigation Measures

Mitigation measures **MM 3.1-3a through MM 3.1-3d** would be applied to mitigate this impact in addition to the following measures.

MM 3.2-2a: For projects with the potential to displace homes and/or businesses, project implementation agencies shall evaluate alternate route alignments and transportation facilities that minimize the displacement of homes and businesses. An iterative design and impact analysis would help where impacts to homes or businesses are involved. Potential impacts shall be minimized to the extent feasible. If possible, existing rights-of-way should be used.

MM 3.2-2b: Project implementation agencies shall identify businesses and residences to be displaced. As required by law, relocation assistance shall be provided to displaced residents and businesses, in accordance with the federal Uniform Relocation and Real Property Acquisition Policies Act of 1970 and the State of California Relocation Assistance Act, as well as any applicable City, County, and Port policies.

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2 SCAG has completed several studies on different segments of the Maglev system. They are available at the SCAG website: http://www.scag.ca.gov/maglev/.

MM 3.2-2c: Project implementation agencies shall develop a construction schedule that minimizes potential neighborhood deterioration from protracted waiting periods between right-of-way acquisition and construction.

Significance after Mitigation

Not all of the projects in the 2004 RTP will be able to be built in existing rights-of-way. A substantial number of businesses and residences likely would be displaced through the development of projects in the 2004 RTP. The impact would remain **significant**.

Impact 3.2-3: The 2004 RTP has the potential to disrupt or divide a community by separating community facilities, restricting community access, and eliminating community amenities.

New transportation facilities or expansion of existing facilities could contribute to changes to community character in many areas of the region. A widened roadway could be perceived as too great a distance to cross by a pedestrian and thus divide a community. An elevated grade crossing may create a physical barrier in some locations. New transportation corridors may traverse community open space, thus eliminating a community amenity (see Land Use Section 3.1 for further discussion of open space). SCAG's GIS was used to analyze where major freeway, rail, and transit projects in the 2004 RTP intersect areas used as open space or public facility (school, university, hospital, etc). A 150-foot potential impact zone was drawn around the freeway, rail, and transit projects in the 2004 RTP to compute the number of acres potentially affected by the major projects in the 2004 RTP. The analysis shows that 1,400 acres of open space and 2,300 acres of public facilities would be located within the 150-foot radius of the freeway, transit, and freight rail projects included in the 2004 RTP.

The addition of new lanes to existing interstate routes has the potential of further dividing communities. As these routes have overcrossings or undercrossings only at select intervals, the widening of the routes would consequently widen the overpass or underpass. As the overpass or underpass is widened, it creates a real or perceived barrier to pedestrians, bicyclists, and motorists. The additional width may be seen as too great a distance to traverse and thus limit community access. In addition, new traffic signals required for the roadway improvements could impede the flow of traffic on the local roadway, thus disrupting community access.

Railroad grade crossing improvements generally improve community mobility and accessibility through the elimination of traffic backups during rail crossings. They also provide better access for emergency vehicles to the entire community.

In addition, the 2004 RTP includes arterial investments, goods movement capacity enhancements, and the Maglev system, which were not included in the GIS analysis summarized above. The alignments of these improvements have not been developed to the point that they can be reliably overlaid onto existing land use data using GIS. However, these projects would

potentially cause additional adverse effects that disrupt or divide communities. See Impact 3.2-2 for a further discussion of these RTP elements.

Additional communities would be affected by the growth associated with the 2004 RTP. The effect of growth and urban development on communities is addressed in the Cumulative Impacts section of this chapter.

Disruption or division of existing communities would be a significant effect of the 2004 RTP.

Mitigation Measures

Mitigation measures **MM 3.1-3a through MM 3.1-3d** would be applied to mitigate this impact in addition to the following measures.

MM 3.2-3a: Project implementation agencies shall design new transportation facilities that consider access to existing community facilities, as feasible. During the design phase of the project, community amenities and facilities shall be identified and considered in the design of the project.

MM 3.2-3b: Project implementation agencies shall design roadway improvements that minimize barriers to pedestrians and bicyclists, as feasible. During the design phase, pedestrian and bicycle routes shall be determined that permit connections to nearby community facilities.

Significance after Mitigation

The 2004 RTP proposes projects that have the potential to disrupt or divide communities and, considering the scale and number of these projects, impacts cannot be mitigated to a less than significant level. The impact would remain **significant**.

Cumulative Impacts

A cumulative impact consists of an impact that is created as a result of the combination of the 2004 RTP together with other projects causing related impacts. The urban development and growth that would be supported by the transportation investments in the 2004 RTP would have the following additional cumulative impacts on population, households, and employment.

Cumulative Impact 3.2-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to currently vacant natural land.

Implementation of the 2004 RTP in combination with increases in population, households, and employment and other land consumption would be expected to consume 500,000 to 700,000

acres of vacant land.[3] Vacant land would be consumed in all six counties. The accessibility gained by improving mobility to vacant areas of the region through implementation of the 2004 RTP would contribute to this cumulatively considerable impact.

Mitigation Measures

Mitigation measure **MM 3.1-3a through MM 3.1-3d** and **3.2-1a** would be applied to mitigate this impact in addition to the following measure.

MM 3.2-4a: SCAG's Growth Visioning program and the forthcoming Regional Growth Vision shall be used to work toward building a consensus in the region to support changes in land use to accommodate future population growth while maintaining the quality of life in the region.

Significance after Mitigation

The accessibility afforded by the 2004 RTP, and the expected shifts in population, households, and employment associated with the mobility benefits would change the growth patterns in the region. The impact would remain **significant**.

Comparison with the No Project

Given the location of the region, its mild climate and existing population trends, growth in the region is inevitable. In the No Project alternative, the population of the SCAG region grows by approximately 6 million people, but no regional transportation investments are made above the existing programmed projects.

Direct Impacts

The No Project Alternative has fewer households, employment, and transportation projects than the Plan Alternative. It also does not have growth strategies that affect the growth distribution. The impact of induced population growth would be less than under the Plan Alternative. The No Project Alternative contains fewer transportation investments than the Plan Alternative. Subsequently, there are fewer places where businesses and homes would be displaced and fewer places where communities would be disrupted. The GIS analysis of existing land use data shows that the freeway, transit, and freight rail projects in the No Project Alternative would occur within 150 feet of 5,300 acres of business land uses (commercial, industrial, and extraction land uses) and 2,800 acres of residential land uses (rural, low, and medium to high density housing land uses). For the Plan Alternative, 18,100 acres of business land uses and 8,100 acres of residential land uses would be affected by transportation projects.

The Plan Alternative impacts would be greater than the No Project Alternative impacts for Impacts 3.2-1, 3.2-2, and 3.2-3.

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[3] Fregonese Calthorpe Associates. (2003). Unpublished data provided to SCAG. Los Angeles, CA.

Indirect Impacts

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. However, the Plan includes land use measures that would help reduce the displacement, disruption, or division of existing communities. These mitigating measures are absent in the No Project Alternative. The proposed Plan also includes additional transportation improvements that facilitate access to currently vacant lands that would be less accessible with the No Project Alternative. This improved accessibility under the Plan would help facilitate population and economic growth in areas of the region that are currently not developed. Furthermore, the proposed Plan includes additional households and jobs associated with the economic benefits of implementing the Plan that would consume vacant land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would consume similar acreage of currently vacant natural land.

The No Project Alternative's cumulative impacts to population, households, and employment would be similar to those of the Plan Alternative.

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3.3 TRANSPORTATION

INTRODUCTION

This section describes the current transportation system in the SCAG region, discusses the potential impacts of the RTP on the transportation environment, identifies mitigation measures for the impacts, and evaluates the residual impacts.

ENVIRONMENTAL SETTING

The Southern California transportation system is a complex intermodal network designed to carry both people and goods. It consists of roads and highways, public transit (paratransit, bus and rail), freight railroads, airports, marine ports and intermodal terminals. The regional roadway system consists of an interconnected network of local streets, arterial streets, freeways, carpool lanes and toll roads. This roadway network allows for the operation of private autos, carpools, motorcycles, private and public buses, and trucks. Non-motorized transportation modes, such as bicycles share many of these facilities. The regional public transit system includes local shuttles, municipal and area-wide public bus operations, rail rapid transit operations, regional commuter rail services, and inter-regional 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 marine ports support substantial international and interregional freight movement and tourist travel. Intermodal terminals consisting of freight processing facilities serve the function of transfer, storage and distribution of goods. The transportation system supports the region's economic needs as well as the demand for personal travel.

The regional transportation system is currently operating at capacity during peak periods. The roadway system shows substantial freeway congestion in the morning and evening peak period, with random episodes of incident-related (i.e. accident) congestion throughout the day. The transit system is experiencing substantial overcrowding on a number of core urban bus routes with significant excess capacity on most off-peak and peripheral routes. Rail transit is very close to capacity during peak hours on the Metro Blue Line, Metro Red Line, and Metro Gold Line, while the Metro Green Line generally has capacity available at all times. Commuter rail service is at or near capacity during peak periods as the routes approach Union Station in downtown Los Angeles, but suburb-to-suburb capacity is available on most lines.

Transportation Planning in the SCAG Region

Numerous agencies are responsible for transportation planning and investment decisions within the SCAG region. SCAG helps integrate the transportation-planning activities in the region to ensure a balanced, multi-modal plan that meets regional as well as county, subregional, and local goals.

Table 3.3-1 identifies local, state and federal governmental agencies that participate in the development of the Regional Transportation Plan. Seven major entities and agencies are involved

Table 3.3-1: Parties Directly Involved in the Development of the Regional Transportation Plan
County Transportation Commissions / Transportation Sales Tax Commission
Imperial
Los Angeles
Orange
Riverside
San Bernardino
Ventura
Subregions/ Councils of Governments
Arroyo Verdugo Cities
Coachella Valley Association of Governments
Gateway Cities COG
Imperial Valley Association of Governments
Las Virgenes-Malibu-Conejo COG
City of Los Angeles
North Los Angeles
Orange County COG
San Bernardino County Associated Governments
San Gabriel Valley Association of Governments
South Bay Cities COG
Ventura County Council of Governments
Western Riverside County COG
Westside Cities COG
Local and County Governments
Other Owners, Operators and Implementing Agencies
Caltrans District Offices
Airport Authorities
Port Authorities
Transit / Rail Operators
Resource / Regulating Agencies
US Department of Transportation (Federal Highway Administration, Federal Transit Administration, Federal Aviation Administration, Federal Railroad Administration)
US Environmental Protection Agency
California Department of Transportation
California Air Resources Board
California Environmental Protection Agency
Air Districts
Other private, Non-profit organizations, interest groups and Tribal Nations
Source: SCAG. (2003). *Draft 2004 Regional Transportation Plan*. Los Angeles, CA.

including SCAG as the designated Metropolitan Planning Organization (MPO), the County Transportation Commissions (CTCs), Sub-regional Councils of Governments (COGs), local and county governments, transit and transportation owners, operators and implementing agencies, Resource / Regulating agencies and other private non-profit organizations, interest groups and tribal nations.

Each of the six counties in the SCAG region has a Transportation Commission or Authority with the exception of Imperial County, where the Imperial Valley Association of Governments (IVAG) serves as the regional countywide transportation agency. These agencies are charged with countywide transportation planning activities, allocation of locally generated transportation revenues and, in some cases, operation of transit services. In addition, there are 14 subregions (COGs) within the SCAG region which are groups of cities and communities geographically clustered (sometimes comprising an entire county), which work together to identify, prioritize, and seek transportation funding for needed investments in their respective areas.

Congestion Management System (CMS)

In order to meet federal certification requirements, SCAG and the county Congestion Management Agencies (CMAs) have worked together to develop a Congestion Management System (CMS) process for the region. In the SCAG region, the CMS is comprised of the combined activities of the RTP, the state Congestion Management Program (CMP) and the Regional Transportation Improvement Program (RTIP).

Under state law, CMPs are prepared and maintained by the CMAs. The Los Angeles County Metropolitan Transportation Authority (LACMTA), Orange County Transportation Authority (OCTA), Riverside County Transportation Commission (RCTC), San Bernardino Associated Governments (SANBAG), and Ventura County Transportation Commission (VCTC) are the designated CMAs of each county and are subject to state requirements. While Imperial County is not subject to state CMP requirements, CMS-related activities there are accomplished through the development of the RTP and the RTIP by the Imperial Valley Associated Governments (IVAG).

Congestion Management Program (CMP)

In addition to SCAG's RTP and RTIP, the key elements of the federal Congestion Management System (CMS) are addressed through the CMP. Because the magnitude of congestion and degree of urbanization differ among the counties, each CMP differs in form and local procedure. By state law, all CMPs perform the monitoring and management functions shown below which also fulfill the federal CMP requirements.

a) Highway Performance – Each CMA monitors the performance of an identified highway system. This monitoring allows each county to track how this system, and its individual components, are performing against established standards, and how performance changes over time.

b) Multi-Modal Performance – In addition to highway performance, each CMP contains an element to evaluate the performance of other transportation modes including transit.

c) Transportation Demand Management (TDM) – Each CMP contains a TDM component geared at reducing travel demand and promoting alternative transportation methods.

d) Land Use Programs and Analysis – Each CMP incorporates a program for analyzing the effects of local land use decisions on the regional transportation system.

e) Capital Improvement Program (CIP) – Using data and performance measures developed through the activities identified above, each CMP develops a CIP. This becomes the first step in developing the County Transportation Improvement Program (TIP). Under state law, projects funded through the RTIP must first be contained in the county CIP.

f) Deficiency Planning – The CMP contains provisions for "deficiency plans" to address unacceptable levels of congestion. Deficiency plans can be developed for specific problem areas or on a system-wide basis. Projects implemented through the deficiency plans must, by statute, have both mobility and air quality benefits. In many cases, the deficiency plans capture the benefits of transportation improvements that occur outside the county TIPs and RTIP such as non-traditional strategies and/or non-regionally significant projects.

The regional transportation planning process and the county congestion management process should be compatible with one another. To ensure consistency, SCAG and the CMAs have developed the Regional Consistency and Compatibility Criteria for CMPs. Information on the CMP activities and resulting data is updated on a biennial basis by each CMA and supplied to SCAG and the respective air quality management district.

Commute Patterns and Travel Characteristics

The existing transportation network serving the SCAG region supports the movement of people and goods. On a typical day in the region, the transportation network serving the 5-county area (excluding Imperial County) supports a total of approximately 368.5 million vehicle miles of travel (VMT) and 10.0 million vehicle hours of travel (VHT). Of this total, over half occur in Los Angeles County and slightly less than one-fifth occur in Orange County. A detailed summary of existing VMT and VHT for the region and five counties is presented in Table 3.3-2. Table 3.3-11 provides general VMT information for all six counties collectively.

Much of the existing travel in the SCAG region takes place during periods of congestion, particularly during the morning and evening peak periods (defined as 6:00 AM to 9:00 AM and 3:00 PM to 7:00 PM, respectively). 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). Table 3.3-3 presents the existing (2000) travel delays and percent of regional VHT in delay by County on freeways and arterials. As shown in Table 3.3-3, regional travel time in delay represents approximately 10% of all daily, 13% of all AM peak period, and 16% of all PM peak period travel times.

Figure 3.3-1 in the Figure Chapter at the end of this document shows PM peak period congestion delay on the regional freeway system. Major portions of the system are extremely congested during the PM peak period, particularly in Los Angeles and Orange Counties and the areas immediately to the east and west. A substantial portion of PM peak period travel in each county takes place in delay, ranging from a low of 8% in Imperial County to a high of 26% in Los Angeles County.

Of the current total daily trips in the SCAG region, approximately 16.2% are home-to-work trips (a.m. trips). Unlike personal trips, commute trips are generally non-discretionary; i.e., they must be made

Table 3.3-2: Summary of Existing (2000) Daily Vehicle Miles & Percent Vehicle Hours of Travel

	Vehicle Miles of Travel (VMT)						Vehicle Hours of Travel (VHT)					
	AM Peak Period		PM Peak Period		Daily		AM Peak Period		PM Peak Period		Daily	
County	Miles	% of Region	Miles	% of Region	Miles	% of Region	Hours	% of Region	Hours	% of Region	Hours	% of Region
Imperial*	1,444,000	2%	1,974,000	2%	7,049,000	2%	35,000	2%	51,000	1%	172,000	2%
Los Angeles	40,419,000	54%	63,074,000	54%	197,196,000	54%	1,289,000	58%	2,132,000	58%	5,829,000	58%
Orange	13,935,000	19%	21,687,000	19%	67,822,000	18%	404,000	18%	670,000	18%	1,876,000	19%
Riverside	8,176,000	11%	13,054,000	11%	41,077,000	11%	214,000	10%	351,000	10%	1,018,000	10%
San Bernardino	7,816,000	10%	12,574,000	11%	39,245,000	11%	201,000	9%	330,000	9%	968,000	10%
Ventura	3,201,000	4%	5,257,000	5%	16,125,000	4%	84,000	4%	143,000	4%	412,000	4%
Total of 5 Counties*	74,991,000	100%	117,620,000	100%	368,514,000	100%	2,227,000	100%	3,677,000	100%	10,275,000	100%

Source: Regional Travel Demand Model, 2003. SCAG. Los Angeles, CA.

Table 3.3-3: Summary of Delay and Work Trip Length, 2000

County	Vehicle Hours of Delay			% of Travel in Delay			Average Home-to-Work Trip Distance (miles)	Average Home-to-Work Trip Duration (minutes)
	AM Peak Period	*PM Peak Period*	*Daily*	*AM Peak Period*	*PM Peak Period*	*Daily*	*Vehicle Trips (AM Only)*	*Vehicle Trips (AM Only)*
Imperial*	1,000	4,000	7,000	3%	8%	4%	*	*
Los Angeles	292,000	562,000	1,061,000	23%	26%	18%	11.3	21.4
Orange	69,000	141,000	260,000	17%	21%	14%	11.6	20.5
Riverside	32,000	59,000	111,000	15%	17%	11%	18.3	29.5
San Bernardino	21,000	41,000	76,000	10%	12%	8%	16.4	26.5
Ventura	8,000	19,000	33,000	10%	13%	8%	13.3	21.7
Average of Counties	70,500	137,667	258,000	13%	16%	10%	14.2	23.9

* Trip distance and duration data is not available for Imperial County

Source: SCAG. (2003). Regional Travel Demand Model. Los Angeles, CA.

at a specific time and to a specific location. The current average home-to-work trip in the region is 14.2 miles long. A summary of home-to-work trip characteristics by county is also presented in Table 3.3-3.

The average vehicle home-to-work trip duration in each county is generally similar while a greater range of average work distances is found in the different counties of the region (from a low of 11.3 miles in Los Angeles County to a high of 18.3 miles in Riverside County). 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.

Based on average accident rates provided by Caltrans, transportation-related fatalities occur at an overall rate of 0.011 per million passenger miles traveled, taking into account the varying accident rates on different facility types (freeway, arterials) and travel modes (bus transit, rail transit). These specific accident rates and the resulting estimate of region-wide accident rates are detailed in Table 3.3-4.

Public transit service in all its forms (including school buses) carry approximately 3.5% of all trips in the SCAG region. Of these, the greatest number are carried by buses, with lesser patronage on Metro Rail, paratransit, commuter rail and other forms of public transit services. Work trips made via public transit account for 4.8% of all home-to-work trips in the region, as detailed in Table 3.3-5.

Regional Freeway, Highway, and Arterial System

Regional Freeway and Highway System

The regional freeway and highway system shown in Figure 3.3-2 in the Figure Chapter at the end of this document is the primary means of person and freight movement for the region. This system provides for direct auto, bus and truck access to employment, services and goods. The network of freeways and state highways serves as the backbone of the system offering very high capacity limited-access travel and serving as the primary heavy-duty truck route system. The components of the regional freeway system are included in Table 3.3-6. These freeways are a sub-set of the state highway system.

Regional HOV System and Park & Ride System

The regional HOV system consists of exclusive lanes on freeways and arterials, as well as busways and exclusive rights-of-way dedicated to the use of high-occupant vehicles. It includes lanes on freeways, ramps and freeway-to-freeway connectors. The regional HOV system is designed to maximize the person-carrying capacity of the freeway system through the encouragement of shared-ride travel modes. HOV lanes operate at a minimum occupancy threshold of either 2 or 3 persons. Many include on-line and off-line park & ride facilities, and several HOV lanes are full “transitways” including on-line and off-line stations for buses to board passengers. The current system is described in Table 3.3-7.

Table 3.3-4: Total Vehicle Fatalities, 2001

County	Fatalities	Fatalities per 100 million Vehicle Miles Traveled	Vehicle Miles Traveled (100 millions)
Highways			
Imperial	28	2.5	11.1
Los Angeles	189	0.5	383.0
Orange	74	0.6	132.7
Riverside	114	1.3	89.0
San Bernardino	148	1.4	108.1
Ventura	28	0.8	36.0
Total SCAG Region	581	0.8	759.9
County	*Fatalities*	*Fatalities per 100 million Passenger Miles Traveled*	*Passenger Miles Traveled (100 millions)*
Transit			
Imperial	0	-	-
Los Angeles	11	0.5	21.0
Orange	0	-	2.3
Riverside	2	2.9	0.7
San Bernardino	0	-	0.9
Ventura	0	-	0.2
Metrolink	7	2.5	2.8
Total SCAG Region	20	0.7	28.4

Sources:

1. California Department of Transportation, Division of Traffic Operations. (2001). Collision Data on California State Highways.

2. Federal Transit Administration. (2002). National Transit Database, 2001. Accessed from www.ntdprogram.com in April 2003.

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, by carpool or vanpool. Most rail transit stations have park and ride lots nearby. There are currently 219 park and ride lots in the SCAG region, including Metrolink station parking lots. These facilities include: 34 park and ride facilities in Orange County, 124 in Los Angeles County, 21 in Riverside County, 18 in San Bernardino County and 22 in Ventura County.[1]

[1] Southern California Association of Governments. 2002. *Park and ride inventory*. Los Angeles, CA.

Table 3.3-5: Existing (2000) Travel Mode Split (% of County Total)

County	Person Trip Type	Drive Alone	Carpool	Transit**	Non-Motorized	Total
Imperial*	Home-Work/Univ					
	All Daily Trips					
Los Angeles	Home-Work/Univ	74.8	13.9	6.5	4.8	100
	All Daily Trips	46.7	40.0	4.2	9.2	100
Orange	Home-Work/Univ	79.5	13.6	3.0	3.9	100
	All Daily Trips	51.1	39.6	2.2	7.2	100
Riverside	Home-Work/Univ	78.4	16.3	1.9	3.4	100
	All Daily Trips	48.1	41.8	3.2	6.9	100
San Bernardino	Home-Work/Univ	78.3	15.8	2.7	3.4	100
	All Daily Trips	47.7	42.0	3.3	7.1	100
Ventura	Home-Work/Univ	80.6	13.4	1.1	4.9	100
	All Daily Trips	51.1	39.1	1.7	8.1	100
Total of 5 Counties*	Home-Work/Univ	76.7	14.2	4.8	4.4	100
	All Daily Trips	48.0	40.2	3.5	8.3	100

*Imperial County data is not available from the SCAG Regional Travel Demand Model.
** Includes school trips by school bus
Source: SCAG. (2003). *Regional Travel Demand Model*.Los Angeles, CA

Table 3.3-6: Existing (2000) Regional Freeway Route Miles and Lane Miles by County

County	*Freeway Route Miles*	*Freeway Lane Miles*
Imperial	89	358
Los Angeles	531	4,265
Orange	202	1,435
Riverside	221	1,320
San Bernardino	189	1,135
Ventura	93	514
SCAG total	**1,325**	**9,027**

Source: SCAG. (2003). Regional Travel Demand Model. Los Angeles, CA.

Table 3.3-7: Existing (2000) Regional High Occupancy Vehicle (HOV) Route Miles and Lane Miles by County

County	*HOV Centerline Miles*	*HOV Total Lane Miles*
Imperial	0	0
Los Angeles	180	370
Orange	98	202
Riverside	18	38
San Bernardino	26	52
Ventura	1	2
SCAG total	**323**	**664**

Source: SCAG. (2003). Regional Travel Demand Model. Los Angeles, CA.

Arterial Street System

The local street system provides access for local businesses and residents. The arterial network provides high levels of signalized street capacity and serves as a feeder system for the regional freeways. These streets also provide an integral part of the regional transportation system, particularly for shorter trips, acting as alternative routes to freeway driving and accounting for approximately 50% of overall daily VMT[2]. Peak period congestion on the arterial street system occurs generally in the vicinity of activity centers, at bottleneck intersections and near many freeway interchanges. The region's arterial street system is described in Table 3.3-8.

[2] Southern California Association of Governments. 2003. *Draft regional transportation plan*. Los Angeles, CA.

Table 3.3-8: Existing (2000) Regional Arterial Route Miles and Lane Miles by County

County		*Route Miles*	*Lane Miles*
Imperial	Principal Arterials	103	462
	Minor Arterials	12	38
Los Angeles	Principal Arterials	2,096	8,390
	Minor Arterials	2,614	8,498
Orange	Principal Arterials	632	3,235
	Minor Arterials	784	2,943
Riverside	Principal Arterials	308	1,225
	Minor Arterials	887	2,754
San Bernardino	Principal Arterials	529	1,797
	Minor Arterials	1,250	3,556
Ventura	Principal Arterials	253	927
	Minor Arterials	327	953
SCAG total	Principal Arterials	**3,921**	**16,036**
	Minor Arterials	**5,874**	**18,742**

Source: SCAG. (2003). Regional Travel Demand Model. Los Angeles, CA.

Public Transit

In Southern California public transit service is comprised of local and express buses, Rapid Bus, 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. Transit service is provided by approximately 30 separate public agencies. Ten of these agencies provide 93 percent of the existing public bus transit service. Local service is supplemented by municipal lines and shuttle services. Private bus companies provide additional regional service.

Metro Rail transit ridership has been steadily increasing as new routes have been added. Commuter rail service has continued to grow steadily since its introduction in 1992, both in service and patronage. A summary of the current service and patronage for the largest transit operators in each county is presented in Table 3.3-9. Many people depend on reliable transit service to participate in the economic, cultural and social benefits of Southern California. Transit ridership has increased in absolute numbers, from a recent low in 1995 to a high in 2001 (approximately 630 million annual boardings).[3] The recent upward trend can be partially credited to new urban rail system service expansions and the introduction and expansion of Metrolink, the region's commuter rail service.

The largest provider of public transit service in Los Angeles County is the Los Angeles County Metropolitan Transportation Authority (LACMTA). LACMTA operates a comprehensive network of fixed-route bus routes and an urban rail system (Metro Rail). Among the fixed-route bus services operated by the LACMTA is Metro Rapid Bus, which consists of a simple route layout, frequent

[3] National Transit Database. 1985-2001. Accessed from www.ntdprogram.com in April, 2003.

Table 3.3-9: Key Statistics for Major Transit Operators (2001)

County	*Largest Transit Operator*	*Average Weekday Boardings*	*Annual Boardings*	*Annual Vehicle Revenue Miles(VRM)*	*Passenger Fares as a % of Operation Expenses**
Fixed Route Bus Service					
Los Angeles	LACMTA	1,155,766	336,308,899	80,281,617	21%*
Orange	OCTA	180,741	57,328,328	20,158,092	34%*
San Bernardino	Omnitrans	51,112	15,468,055	7,575,786	21%*
Riverside	RTA	21,769	6,601,976	5,450,941	19%*
Ventura	SCAT	12,049	3,669,452	1,422,774	23%*
Metro Rail - Subway					
Los Angeles	LACMTA	105,571	31,191,466	5,539,831	21%*
Metro Rail - Light Rail					
Los Angeles	LACMTA	105,613	30,610,139	4,366,779	21%*
Regional Commuter Rail					
Various	SCRRA (Metrolink)	28,080	7,397,965	6,776,085	48%

* For all transit modes. Fare data is not segregated by mode.

Source: Federal Transit Administration. (2002). *The National Transit Database for 2001* . Accessed from www.ntdprogram.com in April 2003.

service, less frequent stops, low-level buses for fast boarding and exiting, color- coded buses and stop, and bus priority at intersections. Metro Rapid Bus routes are currently (as of mid-2003) in operation on Wilshire/Whittier Boulevards, Ventura Boulevard, Vermont Avenue, and South Broadway.

The largest provider of public transit service in Orange County is the Orange County Transportation Authority (OCTA), which operates more than 400 buses on over 70 local and express routes throughout the urbanized portions of Orange County. In 2001, the system experienced approximately 180,000 average weekday boardings, and 34% of the system's operating expenses were recovered through passenger fares.

The largest provider of public transit service in Riverside County is the Riverside Transit Agency (RTA), which is the primary provider of fixed-route and paratransit services throughout a 2,500 square mile service area in the western portion of the county. It operates buses on approximately 40 local and express routes. In 2001, the system experienced approximately 23,000 average weekday boardings (including bus and paratransit boardings), and 19% of the system's operating expenses were recovered through passenger fares.

The largest provider of public transit service in San Bernardino County is Omnitrans, which provides bus and paratransit services in a 480 square mile area in the San Bernardino Valley in the western portion of the county. It operates a fleet of more than 218 buses over approximately 35 routes. In 2001, the system experienced approximately 53,000 average weekday boardings, and 21% of the system's operating expenses were recovered through passenger fares.

The largest provider of public transit service in Ventura County is South Coast Area Transit (SCAT), which provides bus and paratransit services in the western portion of the county with the cities of Ojai, Oxnard, Port Hueneme, San Buenaventura and the unincorporated areas. It operates a fleet of more than 40 buses over approximately 16 routes. In 2001, the system experienced approximately 12,000 average weekday boardings, and 23% of the system's operating expenses were recovered through passenger fares.

Fixed-Route Bus Services

Fixed-route bus services are operated or funded by a number of public agencies from small municipal operators to major county-wide operators. Service levels and frequency of service on routes and corridors varies depending upon demand and available resources. Fixed-route bus operators carried approximately 550,000,000 unlinked trips in 1998.

Metro Rail System

Existing urban rail lines (Metro Rail) are located in Los Angeles County and are operated by LACMTA. They include the Metro Blue Line from Long Beach to Downtown Los Angeles, the Metro Green Line from El Segundo to Norwalk, the Metro Red Line subway, which terminates in North Hollywood with a spur to Western Avenue (shown in Figure 3.3-3 in the Figure Chapter at the end of this document), and the Metro Gold Line which runs from Union Station to Pasadena.

The Metro Rail system is operated seven days a week. A system total of 17 route miles of subway (Metro Red Line) and 55 route miles of light rail serves a total of 65 stations (as of mid-2003). Ridership on the Metro Rail system exceeded 60,000,000 boardings in 2001.[4]

Regional Commuter 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 four lines. Service on the initial system was greatly expanded after the 1994 Northridge earthquake. Currently (2003) SCRRA operates 7 routes including five from downtown Los Angeles to Oxnard, Lancaster, San Bernardino, Riverside, and Oceanside, from San Bernardino to Irvine, and the newest route from Riverside via Fullerton to downtown Los Angeles. As of mid-2003, the system operated 137 trains on weekdays, 24 on Saturdays and 8 on Sundays to 53 stations on 512 route miles. Daily ridership is approximately 34,000 passengers.[5]

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4 Los Angeles Metropolitan Transportation Authority. 2003. http://www.mta.net/press/pressroom/facts.htm#Metro%20Rail, and http://www.mta.net/trans_planning/construction/gold_line.htm. Accessed May 2003.

5 Southern California Regional Rail Authority. 2003. http://www.metrolinktrains.com/about/facts_and_timeline.asp. Accessed May 2003.

Amtrak provides significant regional and inter-regional service on the LOSSAN—San Diego to San Luis Obispo corridor (also known as Amtrak's Pacific Surfliner corridor) operating 30 trains (combined weekday and weekend service) from Los Angeles Union Station. Additionally, Amtrak operates three interstate routes within the region (Sunset Limited, Southwest Chief and Texas Eagle) operating an average of 4 trains per day. These regional commuter rail lines are shown in Figure 3.3-3 in the Figure Chapter at the end of this document.

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 users. 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.

Goods Movement

Wholesale and retail trade, transportation, and manufacturing support over 40% of the region's employment according to statistics provided by the state's Employment Development Department. Goods movement includes trucking, rail freight, air cargo, marine cargo, and both domestic and international freight, the latter entering the country via the marine ports, airports, and the international border with Mexico. Additionally, many cargo movements are intermodal, e.g. 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.

Railroads

The SCAG region is served by two main line commercial freight railroads - the Burlington Northern and Santa Fe Railway Co. (BNSF) and the Union Pacific Railroad (UP). These railroads link Southern California with other U.S. regions, Mexico and Canada either directly or via their connections with other railroads. They also provide freight rail service within California. In 1999, these railroads moved approximately 120 million tons of cargo throughout California. [6]

[6] Calculated from data provided in: LAEDC. (2002). *LA basin mainline study*. Los Angeles, CA.

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 of the 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 causes 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.

Heavy-Duty Trucks

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; i.e., they accelerate and decelerate more slowly than lighter vehicles and require more road space to maneuver. Dedicated capacity enhancement facilities currently exist at two major freeway interchanges: the junction of the Golden State Freeway (1-5) with the Foothill Freeway (I-210) and the Antelope Valley Freeway (SR-14) and at the junction of the San Diego Freeway (I-405) with the Harbor Freeway (I-110). In addition, truck climbing lanes are located on northbound I-5 in northern Los Angeles County.[7]

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

[7] Southern California Association of Governments. 2003. *Goods movement truck and rail study.* Los Angeles, CA.

trans-loading facilities, freight forwarders, truck stops and maintenance facilities. These various facilities are especially prevalent in the case in the South Bay and Gateway Cities areas, including Wilmington and Carson and extending generally between 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, Burbank and Bakersfield. Specialized facilities for trucking that provide air cargo ground transport are located around regional airport facilities, notably LAX and Ontario. In 2000, approximately 1 million daily heavy-duty truck trips occurred in the SCAG region (3% of all vehicle trips). Approximately 16% of all heavy-duty truck travel occurs in delay.[8]

Maritime Ports

Southern California is served by three major deep-water marine ports. These ports—Hueneme, Long Beach and Los Angeles—accommodate 70 weekly vessel strings handling 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 more than 187 million metric tons of cargo in 2002.[9]

In particular, the San Pedro Bay Ports (Long Beach and Los Angeles) dominate the container trade in the Americas by shipping and receiving more than 10.6 million Twenty-foot Equivalent Units (TEUs) of containers in 2002.[10] Together these two ports rank third in the world, behind Rotterdam and Hong Kong, as the busiest maritime ports.

Non-Motorized Transportation Network

Biking and walking primarily constitutes non-motorized transportation. Non-motorized transportation plays a bigger role in the densely-populated, mixed-land-use areas of the region. In 2000 biking and walking accounted for approximately 8.3 percent of total trips and 4.4 percent of trips to work or university from home.[11]

The region's bikeways encourage non-motorized travel, serve as recreational facility, and provide inexpensive, environmentally-friendly transportation opportunities. Class I bikeways are separate paths, Class II bikeways are striped lanes in streets, and Class III bikeways are signed routes. More than 1,000 miles of Class I and II bikeways exist through the region, as well as mountain bike trails,

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8 Southern California Association of Governments 2003. *Year 2000 model validation summary of the regional transportation model*. Los Angeles, CA.

9 Port of Los Angeles and Port of Long Beach. 2003. Accessed from www.portoflosangeles.org/about/facts.htm and www.polb.com/html/2_portStats/comparison.html on August 6, 2003.

10 *Ibid.* Accessed on August 6, 2003.

11 Southern California Association of Governments 2003. *Regional travel demand model results*. Los Angeles, CA.

some of which are also designated for hiking and horseback riding. Bike rack, locker and station programs are ongoing in a number of cities and transit operators. In addition, bus bike racks and bike-on-train programs are offered by a number of transit operators.

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.

Regional Aviation System

The SCAG region contains 56 public use airports, including six active commercial service airports, 44 general aviation, two active limited-commercial service (commuter) airports, two former military airfields (now public-use airports) and two joint-use facilities. The existing active commercial service airports (shown in Figure 3.3-4 in the Figure Chapter at the end of this document) handle the majority of passenger air traffic. They are:

- Bob Hope Airport
- Imperial County (limited commercial service)
- John Wayne/Orange County
- Long Beach
- Los Angeles International
- Ontario International
- Oxnard (limited commercial service)
- Palm Springs

In all, some 89 million annual passengers (MAP) were served in the region in 2000, more than double the number served in 1980. The level of air passenger demand is forecast to be approximately 170 MAP by 2030. While none of the individual airports is the largest in the U.S., the region's airports collectively are the busiest of any region in the country. The existing level of activity reflecting air passenger demand (MAP), operations (take-offs and landings or TOAL) and air cargo demand at each of the six existing airports is shown in Table 3.3-10. A brief discussion of the location, major access routes and facilities at each of these airports follows. In addition, the six other regional airports at which major improvements and/or conversion to civilian uses are contemplated are also described below.

Los Angeles International Airport

Los Angeles International Airport (LAX), as shown in Figure 3.3-4 in the Figure Chapter at the end of this document, is located in the southwestern portion of the City of Los Angeles, bordered by Arbor Vitae / Westchester Parkway to the north, Interstate 405 to the east, Interstate 105 / Imperial Highway to the south, and the Pacific Ocean to the west. It is surrounded by the communities of Westchester and Playa del Rey to the north; the City of El Segundo to the south; and the City of Inglewood and unincorporated areas of Los Angeles County (Lennox and Del Aire) to the east. Major access routes include Interstate 405 and Interstate 105 and a complex network of surface streets extending throughout the surrounding area, including Sepulveda Boulevard, Lincoln

Table 3.3-10: Existing (2002) Activity at Major Commercial Airports in the SCAG Region

	Los Angeles	*Ontario*	*John Wayne*	*Bob Hope*	*Long Beach*	*Palm Springs*	*Regional Total*
Air Passenger Volume (,000)	56,200	6,512	7,903	4,261	1,453	1,108	77,800
Percent of Regional Total	72%	8%	10%	6%	2%	1%	99%
Air Cargo Volume (tons)	1,958,654	547,460	15,152	43,093	58,607	82	2,623,044
Percent of Regional Total	75%	21%	<1%	2%	2%	<1%	100%
Total Annual Operations	645,424	149,292	368,627	162,284	324,345	104,455	1,844,427
Average Daily Operations	1,768	409	1,010	445	889	206	10,106
Percent of Regional Total	35%	8%	20%	9%	18%	6%	100%

Source: Collected from various airports (2003). SCAG. Los Angeles, CA.

Boulevard, La Cienega Boulevard, Aviation Boulevard, Century Boulevard, Arbor Vitae / Westchester Parkway and Imperial Highway.

Ontario International Airport

Ontario International Airport (ONT) is located in the southwest section of San Bernardino county within the city of Ontario, approximately two miles east of Ontario's Central Business District between Holt and Mission Boulevards, and between Haven and Grove Avenues, as shown in Figure 3.3-4 in the Figure Chapter at the end of this document. Major access routes include Interstate 10 and State Route 60 and the major surface streets in the surrounding area, including Holt Boulevard, Archibald and Vineyard Avenues.

John Wayne Airport

John Wayne Airport (SNA) is located in the western portion of Orange County, directly south of Interstate 405, one mile east of State Route 55, and one mile north of State Route 73, as shown in Figure 3.3-4 in the Figure Chapter at the end of this document. Major access routes include these freeways and the major surface streets in the surrounding area, including MacArthur Boulevard and Michelson Drive. The majority of the land surrounding the Airport is within the Cities of Newport Beach, Costa Mesa, and Irvine. In addition, the unincorporated community of Santa Ana Heights is located southeast of the Airport.

Bob Hope Airport

Bob Hope Airport (BUR) is located in the western portion of Los Angeles County, on the west side of the City of Burbank, one mile south of Interstate 5, three miles east of State Route 170, and three miles north of State Route 134, as shown in Figure 3.3-4 in the Figure Chapter at the end of this document. Major access routes include these freeways and the major surface streets in the surrounding area, including Hollywood Way and San Fernando Road.

Long Beach Airport

Long Beach Airport (LGB) is located in the southern portion of Los Angeles County, in the center of the City of Long Beach, directly north of Interstate 405, and three miles west of Interstate 605, and three miles east of Interstate 710, as shown in Figure 3.3-4 in the Figure Chapter at the end of this document. Major access routes include these freeways and the major surface streets in the surrounding area, including Lakewood Boulevard (State Route 19).

Palm Springs International Airport

Palm Springs International Airport (PSP) is located in the central portion of Riverside County, in the City of Palm Springs, two miles southwest of Interstate 10 and one mile northeast of Gene Autry Trail (State Route 111), as shown in Figure 3.3-4 in the Figure Chapter at the end of this document. Major access routes include these highways and the major surface streets in the surrounding area, including Ramon Road.

Palmdale Regional Airport

Palmdale Regional Airport (PMD) is located in northern Los Angeles County, within the north central portion of the City of Palmdale in United States Air Force Plant 42 (AFP 42), one mile north of State Route 138, and three miles east of State Route 14, as shown in Figure 3.3-4 in the Figure Chapter at the end of this document. Major access routes include these highways and the major surface streets in the surrounding area, including 20th Street and Avenue P.

San Bernardino International Airport

San Bernardino Airport (SBD), formerly Norton Air Force Base, is within the City of San Bernardino and is surrounded by unincorporated areas of San Bernardino County and the cities of Redlands, Loma Linda, Highland, and Colton. The Airport is approximately three miles east of Interstate 215, two miles north of Interstate 10, and one mile west and two miles south of State Route 30, as shown in Figure 3.3-4 in the Figure Chapter at the end of this document. Major access routes include these highways and the major surface streets in the surrounding area, including Tippecanoe Avenue, Mill Street and 3rd Street.

Southern California Logistics Airport

Southern California Logistics Airport (VCV), formerly George Air Force Base, is within the City of Victorville, surrounded by unincorporated areas of San Bernardino County and the cities of Victorville and Adelanto. It is approximately two miles east of State Route 395, and three miles northwest of Interstate 15, as shown in Figure 3.3-4 in the Figure Chapter at the end of this document. Major access routes include these highways and the major surface streets in the surrounding area, including Adelanto Road and Air Base Road.

March Air Reserve Base/March Inland Port

March Air Reserve Base / March Inland Port (RIV), formerly March Air Force Base, is located in the western portion of Riverside County east of and adjacent to Interstate 215 and two miles south of State Route 60, as shown in Figure 3.3-4 in the Figure Chapter at the end of this document. The joint-use facility is bordered by the cities of Moreno Valley to the north and east, Riverside to the

northwest, and Perris to the south. Major access routes include these freeways and the major surface streets in the surrounding area, including Van Buren Boulevard and Perris Boulevard.

REGULATORY SETTING

This section describes the federal and state legal framework within which the Regional Transportation Plan (RTP) is developed. It also provides a description of the role various governmental institutions play in shaping and using the Plan.

Federal Agencies and Regulations

Under the Transportation Efficiency Act for the 21st Century (TEA-21), the U.S. Department of Transportation (USDOT) requires that the Metropolitan Planning Organizations (MPOs) prepare long range transportation plans. In federally designated non-attainment and maintenance areas, these plans must be updated every three years. SCAG adopted the 2001 RTP in April 2001, and amended it in March 2002. The 2004 RTP is an update to the 2001 RTP and it replaces the 2001 RTP in its entirety.

The Federal requirements for metropolitan regional transportation plans include the following key provisions:

- Plans must be developed through an open and inclusive process that ensures public input and seeks out and considers the needs of those traditionally under served by existing transportation systems.
- Plans must be for a period not less than 20 years into the future.
- Plans must reflect most recent assumptions for population, travel, land use, congestion, employment, and economic activity.
- Plans must be financially constrained and revenue assumptions must be reasonable in that they can be expected to be available during the time frame of the plan.
- Plans must conform to the applicable State Implementation Plans (SIPs).
- Plans must consider seven planning factors and strategies, in the local context, as follows:
    1. Support the economic vitality of the United States, the individual states, and metropolitan areas, especially by enabling global competitiveness, productivity and efficiency;
    2. Increase the safety and security of the transportation system for motorized and non-motorized users;
    3. Increase the accessibility and mobility options available to people and for freight;

4. Protect and enhance the environment, promote energy conservation, and improve quality of life;

5. Enhance the integration and connectivity of the transportation system, across and between modes throughout the State, for people and freight;

6. Promote efficient system management and operation; and

7. Emphasize the preservation of the existing transportation system.

State Agencies and Regulations

The State requirements largely mirror the Federal requirements and the State has adopted extensive Regional Transportation Plan guidelines. Key additional requirements of the State include the following:

- Transportation plans must comply with the California Environmental Quality Act (CEQA);
- The first four years of the plan must be consistent with the four-year State Transportation Improvement Program (STIP) as incorporated into the Regional Transportation Improvement Program (RTIP);
- Program level performance measures that include objective criteria that reflect the goals and objectives of the RTP must be utilized in the development and evaluation of the Plan;
- Finally, the State guidelines also call for three specific elements of regional plans - a policy element, an action element, and a financial element.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts of implementation of the proposed Plan on transportation and associated environmental effects.

The methodology used in this analysis evaluates the Plan from a system-wide perspective at both the county and regional levels using SCAG's Regional Travel Demand Model. SCAG's Regional Travel Demand Model is a sophisticated chain of models that supports the development of the Regional Transportation Plan (RTP), the Regional Transportation Improvement Program (RTIP) and used as input for development of Air Quality Management Plans in the SCAG region, i.e. the South Coast Air Quality Management Plan (AQMP). The model is a tool for comparisons among alternative transportation system configurations and associated population and employment trip distributions. It should be noted that occurrences that are common but unpredictable such as accidents, transit strikes, and other erratic variables are not included as inputs to the transportation model. Additionally, the model has a margin of error of approximately 5-15%.

Key model inputs to this SCAG model include socio-economic characteristics by traffic analysis zone and detailed descriptions of the existing and proposed transportation networks. Both the socio-economic characteristics and the transportation networks are assumed to change over time, with

future conditions including projected land use development and anticipated transportation improvements. The SCAG model covers all urbanized areas in the five-county area (Los Angeles, Orange, Riverside, San Bernardino and Ventura counties). Data for Imperial County was obtained from a separate model prepared for that County.

Comparison with the No Project

The analysis of transportation resources includes a comparison between the expected future conditions with the 2004 RTP and the expected future conditions if no plan was adopted. This evaluation is not included in the determination of the significance of impacts, however, it provides a meaningful perspective on the effects and benefits of the 2004 RTP.

Determination of Significance

The significance of impacts was determined by applying the significance criteria below to compare current regional transportation conditions to expected future conditions with the Plan. The Regional Travel Demand Model, discussed above, provides performance data for future Plan conditions, and the performance measure output for year 2030 with the Plan was compared to the existing regional conditions for each significance criterion to determine the significance of impacts. The 2030 transportation model output provides a regional and cumulative level of analysis for the impacts of the 2004 RTP on transportation resources.

SIGNIFICANCE CRITERIA

A significant impact is defined as “a substantial or potentially substantial, adverse change in the environment” (Public Record Code § 21068). The proposed Plan would have a significant impact if implementation would potentially:

- Generate substantially more total daily Vehicle Miles of Travel (VMT) than the current daily VMT;
- Result in a substantially higher average Vehicle Hours Traveled (VHT) in delay and percent total VHT in delay for all trips compared to the current VHT delay;
- Result in substantially greater average delay and percent of total VHT in delay for heavy-duty truck trips than the current condition;
- Result in substantial decrease in the percent of work opportunities within 45 minutes travel time by personal vehicle or by transit, relative to the existing condition;
- Result in a substantially higher system-wide fatality accident rate for all travel modes compared to the existing condition; or
- Result in a substantially higher system-wide injury accident rate for all travel modes compared to the existing condition.

- Cause a cumulatively considerable adverse effect on regional transportation and associated environmental effects.

IMPACTS AND MITIGATION MEASURES

Implementation of the 2004 RTP would include implementation of a series of projects which are described in the Project Description (Section 2.0). As discussed in the Methodology and Significance Criteria above, the 2030 transportation system performance is compared to the performance of the existing system for the purpose of determining the significance of impacts. The existing system is represented by year 2000 data as this is the best and most recent data available for regional transportation modeling purposes.

Compared to the existing condition, in 2030 with the implementation of the 2004 RTP, Vehicle Miles Traveled, and Vehicle Hours in delay for all vehicles and for heavy-duty trucks would increase. The percent of work opportunities within 45 minutes travel time by auto or transit would increase. Fatality and injury accident rates would improve.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.3-1: In 2030 there would be substantially more total daily Vehicle Miles of Travel (VMT) than the current daily VMT. Implementation of the 2004 RTP would contribute to this increase.

Substantial growth and development is anticipated to occur within the region between 2000 and 2030. Based on SCAG's model results, average daily VMT are expected to grow from 369 million miles in 2000 to 482 million miles per day in 2030. This change constitutes a 31% increase over this period and includes light, medium and heavy duty vehicle VMT in all six counties.[12] Though per capita VMT would decrease, the environment would experience an overall increase in VMT. The increase in VMT would be a significant impact.

The relationship between the VMT in 2030 with implementation of the 2004 RTP and without implementation of the RTP (The No Project alternative) are shown in Table 3.3-11. Implementation of the 2004 RTP would reduce vehicle miles of travel in 2030 from 500 million miles (without implementation of the 2004 RTP) to 482 million miles.[13] However, for the purpose of determining the significance of this impact, conditions with the Plan must be compared to the existing setting.

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12 Southern California Association of Governments 2003. *Draft 2004 regional travel demand model Results*. Los Angeles, CA.

13 *Ibid.*

Table 3.3-11: Daily Vehicle Miles Traveled (VMT) in 2000 and 2030 (in millions)		
2000 Base Year	*2030 No Project*	*2030 Plan*
368.5	500.3	482.3
Source: SCAG. (2003). *Regional Travel Demand Model Results* . Los Angeles, CA.		

Mitigation Measures

Measures intended to reduce vehicle miles traveled are part of the 2004 RTP. These include: increasing rideshare and work-at-home opportunities to reduce demand on the transportation system, investments in non-motorized transportation and maximizing the benefits of the land use-transportation connection and other Travel Demand Management measures (as described in the Project Description in Section 2.0).

MM 3.3-1a: Beyond the currently financially and institutionally feasible measures included in the 2004 RTP, SCAG shall identify further reduction in VMT could be obtained through additional car-sharing programs, additional vanpools, additional bicycle programs, and implementation of a universal employee transit pass program.

Significance After Mitigation

Implementation of measures beyond those institutionally and economically feasible measures identified in the 2004 RTP would be expected to reduce VMT, however even with this mitigation, the 2030 VMT would be substantially greater than the existing VMT. Therefore, the increase in VMT would remain a **significant impact.**

Impact 3.3-2: In 2030 there would be substantially higher average delay than the current condition. Implementation of the 2004 RTP would contribute to this increase.

As detailed in Table 3.3-12, total daily delay is expected to grow from 2.2 million person-hours in 2000 to 3.2 million person-hours in 2030. This constitutes a 45% increase from conditions in 2000 and includes light, medium and heavy delay in all six counties.[14] The increase in daily delay would be a significant impact.

The relationship between the delay in 2030 with implementation of the 2004 RTP and without implementation of the RTP (The No Project alternative) are shown in Table 3.3-12. Implementation of the 2004 RTP would reduce daily delay in 2030 from 5.4 million person-hours (without

[14] Southern California Association of Governments 2003. *Regional travel demand model results.* Los Angeles, CA.

implementation of the 2004 RTP) to 3.2 million person-hours.[15] However, for the purpose of determining the significance of this impact, conditions with the Plan must be compared to the existing setting.

Mitigation Measures

Measures intended to reduce delay are part of the 2004 RTP. These include: system management, increasing rideshare and work-at-home opportunities to reduce demand on the transportation system, investments in non-motorized transportation, maximizing the benefits of the land use-transportation connection and key transportation investments targeted to reduce delay (as described in the Project Description in Section 2.0). Further reduction in delay would be obtained through the measures described for **Impact 3.3-1**.

Significance After Mitigation

Implementation of measures beyond those institutionally and economically feasible measures identified in the 2004 RTP would be expected to reduce delay for all vehicles, however even with this mitigation, the 2030 total delay would be substantially greater than the existing delay. Therefore, the increase in total delay would remain a **significant impact.**

Table 3.3-12: Daily Hours of Delay in 2000 and 2030 (in millions)

All Vehicles and Trucks			
	2000 Base Year	*2030 No Project*	*2030 Plan*
Delay (person-hours)	2.2	5.4	3.2
Heavy Duty Trucks			
	2000 Base Year	*2030 No Project*	*2030 Plan*
Delay (vehicle-hours)	0.089	0.240	0.161

Source: SCAG. (2003). Regional Travel Demand Model. Draft 2004 Regional Transportation Plan. Los Angeles, CA.

Impact 3.3-3: In 2030 there would be substantially greater average delay for heavy-duty truck trips than the current condition. Implementation of the 2004 RTP would contribute to this increase.

As detailed in Table 3.3-12, total daily heavy-duty truck delay is expected to increase from 89,000 average daily heavy-duty truck vehicle hours of delay in 2000 to 161,000 hours in 2030. This

15 *Ibid.*

constitutes a 79% increase from conditions in 2000.[16] The increase in daily heavy-duty truck trip delay would be a significant impact.

For the region and each county, the relationship between the daily heavy-duty truck trip daily delay with implementation of the 2004 RTP and without implementation of the RTP (The No Project alternative) are shown in Table 3.3-12. Implementation of the 2004 RTP would reduce daily heavy-duty truck hours of delay in 2030 from 240,000 hours (without implementation of the 2004 RTP) to 161,000 hours.[17] However, for the purpose of determining the significance of this impact as required by CEQA, conditions with the Plan must be compared to the existing setting.

Mitigation Measures

Mitigation measures intended to reduce daily heavy-duty truck vehicle hours of delay are part of the 2004 RTP. These include: goods movement capacity enhancements, system management, increasing rideshare and work-at-home opportunities to reduce demand on the transportation system, investments in non-motorized transportation, maximizing the benefits of the land use-transportation connection and key transportation investments targeted to reduce heavy-duty truck delay (as described in the Project Description in Section 2.0). Further reduction in delay for *all* vehicles would be obtained through the implementation of the measures described for **Impact 3.3-1**. The following mitigation measure could decrease delay for heavy-duty trucks.

MM 3.3-3a: The region's ports should extend operation hours in order to reduce heavy-duty truck traffic during peak periods, thereby reducing the VHT these trucks spend in delay.

Significance After Mitigation

Implementation of measures beyond those institutionally and economically feasible measures identified in the 2004 RTP would be expected to reduce delay for heavy trucks, however even with this mitigation, the 2030 heavy-duty truck delay would be substantially greater than the existing delay. Therefore, the increase in heavy-duty delay would remain a **significant impact.**

Impact 3.3-4: Implementation of the 2004 RTP would contribute to an increase in the percent of work opportunities within 45 minutes travel time by personal vehicle or by transit in 2030, relative to the existing condition.

In 2000, approximately 88% of the evening work trips take 45 minutes or less by auto and 33% occur within 45 minutes by transit. In 2030, with the implementation of the Plan, 90% of evening work trips by auto would be 45 minutes or less and 34% of transit trips would occur within 45 minutes.[18]

16 *Ibid.*

17 *Ibid.*

18 *Ibid.*

Evening work trips are used for this measure as this is the portion of the day prone to the most delay. 45 minutes is used as a benchmark to account for reasonable commute lengths for both the auto and transit modes.

For the region and each county, the relationship between the percent of work opportunities within 45 minutes travel time with implementation of the 2004 RTP and without implementation of the RTP (The No Project alternative) are shown in Table 3.3-13. Implementation of the 2004 RTP would increase the percent of work opportunities within 45 minutes evening travel time by auto in 2030 from 83% (without implementation of the 2004 RTP) to 90% (with the Plan) in 2030. The percent of work opportunities within 45 minutes evening travel time by transit in 2030 would increase from 29% (without the Plan) to 34% (with the Plan).[19]

Table 3.3-13: Percentage of Evening Work Trips Completed Within 45 Minutes

	2000 Base Year	*2030 No Project*	*2030 Plan*
Auto	88%	83%	90%
Transit	33%	29%	34%

Source: SCAG. (2003). *Regional Travel Demand Model Results.* Los Angeles, CA.

Mitigation Measures

The impact would be beneficial. No mitigation measures are required.

Significance After Mitigation

The increase, between 2000 and 2030, in the percent of work trips accessible within 45 minutes travel time by auto or transit would be a **beneficial impact**.

Impact 3.3-5: Implementation of the 2004 RTP would contribute to a lower system-wide fatality accident rate for all travel modes in 2030 compared to the existing condition.

The system-wide daily fatality rate would be 0.27 fatalities per million persons for all travel modes, .01 less than the existing rate of 0.28 (Table 3.3-14). The impact would be beneficial. The 2004 RTP includes Transportation System Management strategies that improve safety through reducing the concentration of weaving and merging, and that clear existing incidents and accidents more quickly, among other measures.

19 *Ibid.*

Mitigation Measures

The impact would be beneficial. No mitigation measures are required.

Significance After Mitigation

The decrease, between 2000 and 2030, of the system-wide fatality accident rate would be a **beneficial impact**.

Impact 3.3-6: Implementation of the 2004 RTP would contribute to a lower system-wide injury accident rate for all travel modes in 2030 compared to the existing condition.

Table 3.3-14: 2000 and 2030 SCAG Regional Transportation System Accident Rates

(Daily per million persons)	2000 Base Year	2030 No Project	2030 Plan
Fatalities	0.28	0.28	0.27
Injuries	10.9	10.9	10.6

Sources: California Department of Transportation, Division of Transportation System Information. (November 2002).California Motor Vehicle Stock, Travel and Fuel Forecast, Appendix B.
Federal Transit Administration. (2002). National Transit Database, 2001. Accessed from www.ntdprogram.com in April 2003.
SCAG. (2003). Regional Travel Demand Model.

The system-wide daily injury rate would be 10.6 injuries per million persons for all travel modes, a decrease of 0.4 daily injuries per million persons when compared to the existing rate of 11.0 (Table 3.3-14). The 2004 RTP includes Transportation System Management strategies that improve safety through reducing the concentration of weaving and merging, and that clear existing incidents and accidents more quickly, among other measures.

Mitigation Measures

The impact is beneficial. No mitigation measures are required.

Significance After Mitigation

The decrease, between 2000 and 2030, of the system-wide injury rate is a **beneficial impact**.

Cumulative Impacts

A cumulative impact consists of an impact which is created as a result of the combination of the 2004 RTP together with other projects causing related impacts.

The 2030 transportation model includes the population, households, and employment projected for 2030, and therefore the largest demand on the transportation system expected during the lifetime of the 2004 RTP. In accounting for the effects of regional population growth, the model output provides a regional, long-term and cumulative level of analysis for the impacts of the 2004 RTP on transportation resources. **Forecast urban development and growth that would be accommodated by the transportation investments in the 2004 RTP, together with the increased mobility provided by the 2004 RTP would contribute to the significant impacts described in Impacts 3.3-1, 3.3-2, and 3.3-3 above.** The regional growth, and thus cumulative impacts, are captured in the VMT, VHT, and heavy-duty truck VHT data reported for the above impacts.

In addition to the impacts described above, the urban development and growth that would be accommodated by the transportation investments in the 2004 RTP would have the following additional cumulatively considerable impact:

Cumulative Impact 3.3-7: Implementation of the 2004 RTP would contribute to a cumulatively considerable amount of transportation impacts, such as VMT and all-vehicle VHT in delay, to counties outside of the SCAG region. As the population increases through 2030, the number of trips originating and ending in Santa Barbara, San Diego and Kern counties to and from the SCAG region would increase. The transportation demand from growth, in combination with the projects in the 2004 RTP would contribute to a cumulatively considerable transportation impact in these other counties.

The projects and measures designed to minimize VHT and VMT that are included in the 2004 RTP , and Mitigation Measures 3.3-1-a through 3.3-3a would minimize this effect. However, the regional contribution would remain **significant**.

Comparison with the No Project

Comparison with the No Project is included in the discussion of each impact (3.3-1 through 3.3-6 above). The transportation impacts of the 2004 RTP would be less than those of the No Project Alternative.

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3.4 AIR QUALITY

INTRODUCTION

This section describes the existing air quality in the SCAG region, identifies the potential impacts of the RTP on air quality, includes mitigation measures for the impacts, and evaluates the residual impacts.

ENVIRONMENTAL SETTING

The environmental setting addresses issues related to air pollutant emissions, including *criteria air pollutants* and *toxic air contaminants*. The term *criteria air pollutants* refers to those pollutants that are pervasive in urban environments and for which health-based state or national ambient air quality standards have been established. The term *toxic air contaminants* refers to those pollutants that occur at relatively low concentrations and are associated with carcinogenic and other adverse health effects, but for which no ambient air quality standards have been established. Criteria pollutants and toxic air contaminants are discussed in separate sections below.

Climate and Meteorology

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features. Atmospheric conditions such as wind speed, wind direction, air temperature gradients and local topography influence the movement and dispersal of pollutants.

The SCAG region incorporates four air basins and five air districts. The four air basins are the South Coast Air Basin (SCAB), the Mojave Desert Air Basin (MDAB), the Salton Sea Air Basin (SSAB), and the Ventura County portion of the South Central Coast Air Basin (SCCAB). The five air districts are the South Coast Air Quality Management District (SCAQMD), the Mojave Desert Air Quality Management District (MDAQMD), the Imperial County Air Pollution Control District (ICAPCD), the Antelope Valley Air Quality Management District (AVAQMD), and the Ventura County Air Pollution Control District (VCAPCD). The geographic boundaries of these air basins and air districts are shown in Figure 3.4-1 located at the end of this document.

South Coast Air Basin (SCAB)

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 the California Air Resources Board (ARB) 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.[1]

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 basinwide occurrence of inversions at 3500 feet above sea level or less averages 191 days per year.[2]

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 mph, smog potential is greatly reduced.[3]

Mojave Desert Air Basin (MDAB)

In total the MDAB encompasses approximately 21,480 square miles and includes the desert portions of San Bernardino County, Riverside, Palo Verde Valley, and 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. The Kern County portion of MDAB is not in the SCAG Region. The climate is characteristic of a desert environment. The intervening mountain ranges block cool, moist coastal air and create hot, dry summers and cool winters. Meteorology is influenced by a moderately intense anti-cyclonic circulation, except during periods of frontal activity during the winter. On average, 20-30 frontal systems (i.e. storms) move into the MDAB each winter.[4]

The MDAB experiences high prevailing winds primarily from the south and west, which result in a visible "smog wall" being transported from SCAB through mountain passes. The exchange of lower and upper air tends to accelerate surface winds during the warm part of the day when convection is at a minimum. During the winter the rapid cooling of the surface layers at night retards this exchange of momentum, which often results in calm winds.[5]

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1 South Coast Air Quality Management District. April 1993. *CEQA air quality handbook*, p. A8-1.

2 *Ibid*, p. A8-2.

3 *Ibid.*

4 Mojave Desert Air Quality Management District. January 1996. *Triennial revision to the 1991 air quality attainment plan*.

5 *Ibid.*

The inversion conditions in the MDAB are much less favorable for the build-up of high ozone concentrations than in the coastal areas of Southern California. When subsidence inversions occur, they are generally 6,000 to 8,000 feet above the desert surface, allowing much greater vertical mixing than along the coast where the inversion base is often much lower. As a result, meteorology in the MDAB is less conducive for the chemical mixing characteristic of typical ozone formation. [6]

Salton Sea Air Basin (SSAB)

The SSAB includes all of Imperial County and the desert portion of Riverside County between the SCAB and the MDAB (known as the Coachella Valley area). Imperial County extends over 4,597 square miles, 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. [7]

The southern portion of the SSAB is a part of the larger physiographic province of the Salton Trough. This province is a very flat basin surrounded by mountains: the Peninsular Ranges to the west, the Chocolate, Orocopia and Cargo Muchaco Mountains to the east. Most of the Trough is below sea level, and consists generally of desert, with agricultural land uses located at the north and south ends of the Salton Sea. [8]

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 most mid-latitude storms except in the winter when the high-pressure ridge is weakest and farthest south. Similarly, the coastal mountains prevent the intrusion of any cool, damp marine air found in California coastal environs. Because of the weakened storms and the mountainous barrier, the SSAB experiences clear skies, very low humidities, 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. [9]

The combination of subsiding air, protective mountains, and distance from the ocean all combine to severely limit precipitation. Rainfall is highly variable with precipitation from a single heavy storm exceeding the entire annual total during a later drought condition. [10]

Humidities are low throughout the year, ranging from 28 percent in summer to 52 percent in winter. The large daily oscillation of temperature produces a corresponding large variation in the

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6 *Ibid.*

7 Imperial County Air Pollution Control District. April 1992. *1991 air quality attainment plan*.

8 *Ibid.*

9 *Ibid.*

10 *Ibid.*

relative humidity. Nocturnal humidities rise to 50-60 percent, but drop to about 10 percent during the day. [11]

The SSAB occasionally experiences periods of high winds. Wind speeds exceeding 31 mph occur most frequently in April and May. On an annual basis, strong winds (≥31 mph) are observed 0.6% of the time and speeds of less than 6.8 mph account for more than one-half of the observed winds. Wind statistics indicate prevailing winds are from the west-northwest through southwest; a secondary flow maximum from the southeast is also evident. [12]

Imperial County, in particular, experiences surface inversions almost every day of the year. Due to strong surface heating, these inversions are usually broken allowing pollutants to more easily disperse. Weak surface inversions are caused by cooling of air in contact with the cold surface of the earth at night. In valleys and low-lying areas, this condition is intensified by the addition of cold air flowing downslope from the hills and pooling on the valley floor. [13]

The presence of the Pacific high-pressure cell can cause the air mass aloft to sink. As the air descends, compressional heating warms it to a temperature higher than the air below. This highly stable atmospheric condition, termed a subsidence inversion can act as a nearly impenetrable lid to the vertical mixing of pollutants. The strength of these inversions makes them difficult to disrupt. Consequently, they can persist for one or more days, causing air stagnation and the buildup of pollutants. Highest or worst-case ozone levels are often associated with the presence of this type of inversion. Subsidence inversions are common from November through June, but appear to be relatively absent July through October. [14]

South Central Coast Air Basin (SCCAB)

The SCAG region includes the Ventura County portion of the SCCAB. Ventura County is comprised of coastal mountain ranges, the coastal shore, the coastal plain, and several inland valleys. 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 southern half of the County where violations of federal and state ozone standards occur. [15]

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

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[11] *Ibid.*

[12] *Ibid.*

[13] *Ibid.*

[14] *Ibid.*

[15] Ventura County Air Pollution Control District. November 1996. *1994 air quality management plan*.

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. [16]

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 semi-arid, 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. [17]

Ventura County winds are dominated by a daily 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 movement can cause a build-up of pollutants over several days. [18]

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. [19]

REGULATORY SETTING

Federal Regulatory Setting

Federal Clean Air Act (CAA)

The CAA was passed in 1963 by the U.S. Congress and has been amended several times. The 1970 Clean Air Act Amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including non-attainment requirements for areas not meeting national ambient air quality standards (NAAQS) and the Prevention of Significant Deterioration (PSD) program. The 1990

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16 *Ibid.*

17 *Ibid.*

18 *Ibid.*

19 *Ibid.*

Amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the U.S.

U.S. Environmental Protection Agency (EPA)

The Federal CAA requires the EPA to establish national ambient air quality standards for air pollutants or air pollutant groups that pose a threat to human health or welfare. The primary responsibility for implementing and enforcing the provisions of the Clean Air Act rests within the individual states. This is accomplished through state implementation plans (SIPs), which must be submitted to the USEPA for review and approval. SIP submittal schedules vary by air basin, pollutant and the severity of air quality problems.

Federal Air Quality Standards

The CAA requires the EPA to list air pollutant compounds which may endanger public health or welfare; to publish air quality "criteria" describing the latest scientific knowledge on these compounds, their pollutant interactions, and control techniques; and to identify the NAAQS protective of public health and welfare. Currently, EPA has established national standards for ozone (O3), carbon monoxide (CO), sulfur dioxide (SO2), nitrogen dioxide (NO2), particulate matter (PM10 and PM2.5), and lead (Pb). The national air quality standards are presented in Table 3.4-1. For each compound, this table describes health issues related to exposure to each pollutant and identifies the major source(s) of these emissions.

National standards consist of two parts: an allowable concentration of a pollutant and an averaging time over which the concentration is to be measured. The allowable concentrations are based on the results of studies of the effects of the pollutants on human health, crops and vegetation, and, in some cases, damage to paint and other materials. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposures to a high concentration for a short time (e.g., one-hour) or to a relatively lower average concentration over a longer period (e.g., 8 hours, 24 hours, or 1 month). For some pollutants, there is more than one air quality standard, reflecting both its short-term and long-term effects.

Federal Criteria Pollutants

Ozone (O3)

Ozone is a reactive pollutant, which is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NOX). ROG and NOX are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours. Ozone is a regional air pollutant because it is formed downwind of sources of ROG and NOx under the influence of wind and sunlight. Short-term exposure to elevated concentrations of

Table 3.4-1: Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone (O3)	1 hour	0.09 ppm	0.12 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Motor vehicles.
	8 hours	---	0.08 ppm*		
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9 ppm	9.0 ppm		
Nitrogen Dioxide (NO2)	Annual Average	---	0.05 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.25 ppm	---		
Sulfur Dioxide (SO2)	Annual Average	---	0.03 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	---		
	24 hours	0.04 ppm	0.14 ppm		
Suspended Particulate Matter (PM10, PM2.5)	Annual Geometric Mean	30 ug/m3 (PM10)	65 ug/m3 (PM2.5)*	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	---	50 ug/m3 (PM10)		
	24 hours	50 ug/m3 (PM10)	150 ug/m3 (PM10) 15 ug/m3 (PM2.5)*		
Lead	Monthly	1.5 ug/m3	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction (in severe cases).	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 ug/m3		
Sulfates (SO4)	24 hours	25 ug/m3	---	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Industrial processes.

Source: California Air Resources Board, *Ambient Air Quality Standards*, January 25, 1999.
* pending court decision

ozone is linked to such health effects as eye irritation and breathing difficulties. Ozone may pose its worst health threat to those who already suffer from respiratory diseases. [20]

In 1979, EPA promulgated the current ozone standard, 0.12 parts per million (ppm), which is measured over a one hour period (i.e. the 1-hour standard). This standard addresses peak concentrations of ozone typically seen in urban areas.

[20] South Coast Air Quality Management District. April 1993. *CEQA air quality handbook*.

In 1997, EPA revised the ozone standard setting it at 0.08 ppm averaged over an 8-hour time frame. However, a number of events delayed implementation of the new 8-hour standard. In May 2003, the EPA released its proposed rule to implement the 8-hour ozone NAAQS and plans to issue a final rule by the end of 2003. The proposed rule outlines steps that areas would be required to take to maintain or further clean their air and protect the public from ground-level ozone pollution.

In general, the 8-hour standard is more protective of public health and more stringent than the 1-hour standard because it addresses a broader period of time (i.e. a.m. and p.m. operation) and is more difficult to control. There are more areas that do not meet the 8-hour standard than there are areas that do not meet the 1-hour standard, including large areas of California. The South Coast Air Basin (SCAB) will be classified as a severe nonattainment area for the 8-hour standard. EPA will promulgate final attainment designations by April 15, 2004 (the 8-hour designations are consistent with the 1-hour designations for the SCAG Region). All areas not currently attaining the 1-hour standard, such as the SCAB, must submit an attainment demonstration plan within three years of designation (April 2007). The attainment dates vary by area and range between 2007 to 2021. The SCAB would have 17 years from that date of designation to demonstrate attainment (April 2021).

Carbon Monoxide (CO)

CO is a non-reactive pollutant that is a product of incomplete combustion. Ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic and are also influenced by meteorological factors such as wind speed and atmospheric mixing. Under inversion conditions, carbon monoxide concentrations may be distributed more uniformly over an area out to some distance from vehicular sources. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease or anemia, as well as for fetuses.

Sulfur Dioxide (SO2)

SO2 is formed through the oxidation of elemental sulfur; suspended sulfates are the product of further oxidation of SO2. The main sources of sulfur dioxide include fuel combustion, chemical plants, sulfur recovery plants and metal processing facilities. In some parts of the state, elevated levels can also be due to natural causes, such as wind-blown dust and sea salt spray. Suspended sulfates contribute to overall particulate concentrations in ambient air which, if high enough, are suspected to be a cause of premature death in individuals with pre-existing respiratory disease.

Nitrogen Dioxide (NO2)

NO2 and SO2 are two gaseous compounds within a larger group of compounds, NOX and sulfur oxides (SOX), respectively, which are products of the combustion of fuel. NOX and SOX emission sources can elevate local NO2 and SO2 concentrations, and both are regional precursor

compounds to particulate matter. As described above, NOX is also an ozone precursor compound and can affect regional visibility. (NO2 is the "whiskey brown" colored gas readily visible during periods of heavy air pollution.) Elevated concentrations of these compounds are associated with increased risk of acute and chronic respiratory disease.

Particulate Matter (PM10 and PM2.5)

PM10 consists of particulate matter that is 10 microns or less in diameter (a micron is one-millionth of a meter), and PM2.5 consists of particulate matter 2.5 microns or less in diameter. Both PM10 and PM2.5 represent fractions of particulate matter, which can be inhaled into the air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect.

National standards for particulate matter were first established in 1971. The original particulate matter standards were defined in terms of "total suspended particulate" (TSP), which includes particles that are 30 microns or smaller in diameter. In 1987, USEPA re-defined the standards in terms of PM10, instead of TSP, to focus on smaller-diameter particles, based on a comprehensive review of information on the health effects from inhaling particulate matter. Then, in December 1994, USEPA began another review process to determine if the PM10 standards set in 1987 provide a reasonable margin of safety, and if a new standard should be established for finer particles.

Based on numerous epidemiological studies and other health and engineering related information, USEPA established new standards for fine particulate matter (PM2.5) in 1997. Before establishing the new PM2.5 standards, discussions were conducted with the Clean Air Scientific Advisory Committee (CASAC). CASAC is a group of nationally recognized experts in the fields related to air pollution, environmental health, and engineering. CASAC reviewed and commented on the information generated by EPA regarding proposed particulate matter standards.

Subsequent to these discussions and reviews, EPA established PM2.5 concentration standards of 65 micrograms per cubic meter, 24-hour average, and 15 micrograms per cubic meter, annual average. EPA also re-affirmed the national PM10 standards of 150 micrograms per cubic meter, 24-hour average, and 50 micrograms per cubic meter, annual average, as providing an adequate margin of safety for exposure to particles with diameters of 10 microns or less. These recommendations were released in a staff report[21] that presents the conclusions of the Agency and of the review committee, CASAC. EPA is scheduled to release a PM2.5 implementation rule in late 2003 and finalize area designations in December 2004. The expected attainment dates are 2009-2014.

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[21] United States Environmental Protection Agency. July 1996. *Review of the national ambient air quality standards for particulate matter, policy assessment of scientific and technical Information*, EPA-452/R-96-013.

Several studies that EPA relied on for their staff report have shown an association between exposure to particulate matter, both PM10 and PM2.5, and respiratory ailments or cardiovascular disease.[22,23,24] Other studies have related particulate matter to increases in asthma attacks.[25,26] In general, these studies have shown that short-term and long-term exposure to particulate matter can cause acute and chronic health effects. Fine particulate matter (PM2.5), which can penetrate deep into the lungs, causes more serious respiratory ailments.

Lead (Pb)

Gasoline-powered automobile engines used to be the major source of airborne lead in urban areas. Excessive exposure to lead concentrations can result in gastrointestinal disturbances, anemia, kidney disease, developmental disorders, and in severe cases, neuromuscular and neurologic dysfunction. The use of lead additives in motor vehicle fuel has been eliminated in California, and lead concentrations are thought to have declined substantially as a result.

Toxic Air Contaminants (TACs)

TACs also referred to as hazardous air pollutants (HAPs), are generally defined as those contaminants that are known or suspected to cause serious health problems, but do not have a corresponding ambient air quality standard. Toxic air contaminants are emitted by a variety of industrial processes such as petroleum refining, electric utility and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust and may exist as particulate matter or as vapors (gases). Toxic air contaminants include metals, other particles, gases adsorbed onto particles, and certain vapors from fuels and other sources. An example of such a pollutant is the chemical benzene, which is in gasoline. Inhaling fumes that contain benzene could increase a person's cancer risk. Another example is particulate matter from diesel fuel exhaust.

The emission of toxic substances into the air can be damaging to human health and to the environment. Human exposure to these pollutants at sufficient concentrations and durations can result in cancer, poisoning, and rapid onset of sickness, such as nausea or difficulty in breathing. Other less measurable effects include immunological, neurological, reproductive, developmental, and respiratory problems. Pollutants deposited onto soil or into lakes and streams affect ecological systems and eventually human health through consumption of contaminated food.

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22 Pope, C.A., J. Schwartz, and M. Ransom. 1992. *Daily mortality and PM10 pollution in Utah Valley*, Arch. Environ. Health 42:211-217.

23 Thurston, G.D., K. Ito, P. Kinney and M. Lippman. 1992. *A multi-year study of air pollution and respiratory hospital admissions in three New York state metropolitan areas*, J. Expos. Analysis and Environ. Epidemiol. 2:429.

24 Burnett, R.T., R.E. Dales, D. Krewski. 1995. *Associations between ambient particulate sulfate and admissions to Ontario hospitals for cardiac and respiratory diseases*, Am. J. Epidemiolology 142:15-22.

25 Whittemore, A.S., and E.L. Korn. 1980. *Asthma and air pollution in the Los Angeles area*, A.J. Public Health 70:687.

26 Pope, C.A., D.W. Dockery, J.D. Spengler, and M.E. Razienne. 1991. *Respiratory health and PM10 pollution: A daily time series*, Am. Rev Respir. Dis. 144:688.

Toxic air contaminants are regulated under both state and federal laws. The 1970 Amendments to the Clean Air Act (first enacted by Congress in 1963) included a provision to address air toxics. Under Title III of the Clean Air Act, EPA establishes and enforces National Emissions Standards for Hazardous Air Pollutants (NESHAPs), which are nationally uniform standards oriented towards controlling particular hazardous air pollutants (HAPs). Title I, Section 112(c) of the CAA further directed EPA to develop a list of sources that emit any of 189 HAPs, and to develop regulations for these categories of sources. To date, EPA has listed 174 categories and developed a schedule for the establishment of emission standards.[27] Rather than promulgating NESHAPs for each pollutant, the CAA, as amended in 1990, directs EPA to set source category, technology based standards requiring companies to sharply reduce emissions of toxic air contaminants. These standards require industries to install Maximum Achievable Control Technology (MACT), which is defined as the control technology achieving the maximum degree of reduction in the emission of HAPs, taking into account cost and other factors. EPA is required to establish and phase in specific performance based standards for all of the industries that emit one or more of the pollutants in significant quantities.

State Regulatory Setting

California Environmental Quality Act (CEQA)

Projects that have the potential to emit air pollutants are generally required to undergo CEQA review to determine the potential for significant impacts from both the construction and operation phases of the project.[28]

California Clean Air Act

In 1988, the State Legislature passed the California Clean Air Act, which established California's air quality goals, planning mechanisms, regulatory strategies, and standards of progress. The California Clean Air Act provides the State with a comprehensive framework for air quality planning regulation.

The California Clean Air Act requires attainment of state ambient air quality standards by the earliest practicable date. Attainment plans are required for air districts in violation of the state ozone, carbon monoxide, sulfur dioxide, or nitrogen dioxide standards.

State Air Quality Standards

California has adopted more stringent standards than the federal government for most of the criteria air pollutants (referred to as State Ambient Air Quality Standards, or state standards) and has adopted ambient air quality standards for some pollutants for which there are no corresponding national standards, as shown in Table 3.4-1.

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[27] United States Environmental Protection Agency, Office of Compliance, Office of Enforcement and Compliance Assurance. October 1998. *EPA office of compliance sector notebook project: Air transportation industry*.

[28] South Coast Air Quality Management District. April 1993. *CEQA air quality handbook*.

State Criteria Pollutants

The State criteria pollutants are the same as those identified under the federal criteria pollutants; refer to the description and discussion of the criteria pollutants above (ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, particulate matter, and lead).

Toxic Air Contaminant (TAC) Identification and Control Act

The California Air Resources Board's (ARB) statewide comprehensive air toxics program was established in the early 1980's. The Toxic Air Contaminant Identification and Control Act (AB 1807, Tanner 1983) established a process for identifying TACs and provided the authority for developing retrofit TAC control measures on a statewide basis. In 1992, the State legislature adopted Assembly Bill 2728 to provide a legal framework for the integration of the existing State air toxics programs, including those developed under AB 1807, with the new federal program discussed above. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, Connelly 1987) supplements the AB 1807 program, by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

California Air Resources Board (ARB)

The ARB is authorized to adopt standards, rules, and regulations to achieve the maximum degree of toxic air contaminant emission reduction possible from vehicular and other mobile sources. As part of this effort, the ARB adopted Phase 2 Reformulated Gasoline, a cleaner-burning gasoline, in spring of 1996. Phase II Reformulated Gasoline required the average benzene content to be reduced from 2.0 percent to 1.0 percent and the xylene content to be reduced from 11.0 percent to 2.4 percent.

The ARB and the Office of Environmental Health Hazard Assessment (OEHHA) have been evaluating diesel exhaust since 1989 under California's air toxics program, for potential identification as a toxic air contaminant. On August 27, 1998, the ARB formally approved a proposal to list particulate emissions from diesel-fired engines as a TAC. Emissions from diesel-fueled engines are mainly composed of particulate matter and gases, which contain potential cancer-causing substances such as arsenic, benzene, formaldehyde, nickel, and polycyclic aromatic hydrocarbons.

The ARB has already adopted many regulations that reduce particulate matter, nitrogen oxides (NOX), and sulfur oxides (SOX) emissions from diesel-fueled engines. These measures also reduce toxic air contaminants.

The existing control measures are as follows:

- A requirement for low sulfur/low aromatic diesel fuel that reduces particulate matter, NOX, and SOX, emissions (October 1993).
- Emission standards that restrict the amount of particulate matter emitted by new diesel cars, trucks, urban buses, and heavy-duty trucks (phased in from 1982 through 1996);

- Emission standards for NOX emissions from diesel cars, trucks, and urban buses (phased in from 1984 through 2004);
- The roadside testing of heavy-duty on-road vehicles for excessive particulate matter emissions (1991) and a requirement for fleet inspection and maintenance of heavy-duty vehicles (Summer 1998); and
- Emission standards that restrict the amount of particulate matter and NOX that can be emitted from many 1995 and newer diesel utility engines.

The planned control measures are as follows:

- Requirement to use low sulfur/low aromatic diesel fuel in locomotives.
- Reduction in the sulfur content in diesel fuel to no more than 15 parts per million (ppm) beginning in 2006.
- Reduction of particulate matter emissions by 2007 for heavy duty trucks by an additional 90 percent to emission levels no more than 0.01 grams per brake horsepower-hour through the use of catalytic filter traps.
- $25 million incentive program (the Moyer Program) to reduce TAC emissions from heavy-duty diesel-fueled engines by providing grants for the incremental cost of lower-emission engines.

Existing Air Quality within the SCAG Region

The CAA and California Clean Air Act classify air basins in terms of the severity of existing conditions and set deadlines for meeting ambient air quality standards depending on assigned classification. The CAA categories range from “marginal” to “extreme” and the California Clean Air Act categories are “moderate, serious, severe, and extreme.”

Existing air quality is monitored at over 50 monitoring stations throughout the SCAG region. The location of these stations is shown in Figure 3.4-1 located at the end of this document. Year 2000 through 2002 monitoring data is summarized in Table 3.4-2, which shows applicable standards, peak monitored concentrations, and the number of times standards were exceeded within each air basin.

Federal and State Attainment and Non-Attainment Areas within the SCAG Region

Under amendments to the CAA, EPA has classified air basins, or portions thereof, as either “attainment” or “non-attainment” for each criteria air pollutant, based on whether or not the national standards have been achieved. In 1988, the State Legislature passed the California Clean Air Act, which is patterned after the CAA to the extent that areas are designated as “attainment” or “non-attainment,” but with respect to the state standards, rather than the national standards. Thus, areas in California have two sets of attainment/non-attainment designations: one set with respect to the national standards and one set with respect to the state standards.

Table 3.4-2: Air Quality Monitoring Data Summary

Pollutant	Averaging Time	Standard*	2000 Peak Conc.	2000 No. Days Exceed	2001 Peak Conc.	2001 No. Days Exceed	2002 Peak Conc.	2002 No. Days Exceed
Peak Concentrations and Exceedances: South Coast Air Basin								
O3	1-hour	0.09 ppm	0.18 ppm	17	0.19 ppm	26	0.17 ppm	32
	8-hour	0.08ppm	0.16 ppm	73	0.14 ppm	74	0.15 ppm	82
CO	1-hour	20.00 ppm	14.00ppm	0	12 ppm	0	16.00 ppm	-
	8-hour	9.00 ppm	10.00 ppm	2	7.71 ppm	0	10.1 ppm	1
NO2	1-hour	0.25 ppm	0.21 ppm	0	0.25 ppm	0	0.26 ppm	1
	AAM	0.05 ppm	0.04 ppm	-	0.04 ppm	-	0.04 ppm	-
SO2	1-hour	0.25 ppm	0.17 ppm	0	0.09 ppm	0	0.07 ppm	-
	24-hour	0.04 ppm	0.04 ppm	0	0.01 ppm	0	0.02 ppm	-
	AAM	0.03 ppm	0.00 ppm	-	0		-	-
PM10	24-hour	150 ug/m3	116.00 ug/m3	42	219 ug/m3	1	139 ug/m3	0
	AAM	50.00 ug/m3	60.1 ug/m3	-	63.1 ug/m3	-	58.5 ug/m3	-
	AGM	30.00 ug/m3	54.7 ug/m3	-	54.3 ug/m3	-	53.4 ug/m3	-
PM2.5	24-hour	65 ug/m3	119.6 ug/m3	-	98.0 ug/m3	-	82.5 ug/m3	8
	AAM	15 ug/m3	28.3 ug/m3	-	31.0 ug/m3	-	27.5 ug/m3	-
Lead	Monthly	1.50 ug/m3	0.09 ug/m3	0	0.23 ug/m3	0	0.06 ug/m3	-
	Quarterly	1.50 ug/m3	0.06 ug/m3	0	0.12 ug/m3	0	0.05 ug/m3	-
SO4	24-hour	25.00 ug/m3	26.7 ug/m3	1	20.6 ug/m3	0	17.8 ug/m3	-
Peak Concentrations and Exceedances: Mojave Desert Air Basin								
O3	1- hour	0.09 ppm	0.16 ppm	11	0.15 pmm	6	0.16 ppm	16
	8-hour	0.08 ppm	0.13 ppm	72	0.12 ppm	65	0.12 ppm	66
CO	1-hour	20.00 ppm	6.0 ppm	0	6.1 ppm	0	6.1 ppm	0
	8-hour	9.00 ppm	4.34 ppm	0	3.33 ppm	0	2.24 ppm	0
NO2	1-hour	0.25 ppm	0.10 ppm	-	0.1	-	MD: 0.085 ppm	0
							AV: 0.101 ppm	0
SO2	1-hour	0.25 ppm	0.025 ppm	0	0.012 ppm	0	0.012 ppm	0
	24-hour (AA?)	0.04 ppm	0.007 ppm	0	0.007 ppm	0	0.001 ppm	0
PM10	24-hour	50.00 ug/m3	90 ug/m3	-	115 ug/ m3	-	208 ug/m3	6
	AAM	50.00 ug/ m3	33.6 ug/m3	-	29.8 ug/ m3	-	34.3 ug/m3	-
	AAM	30.00 ug/ m3	19.3 ug/m3	-	26.6	-	30.8 ug/m3	-
PM2.5	24-hour	65 ug/ m3	38.6 ug/m3	-	35.0 ug/ m3	-	Lanc: 24.2 ug/m3	-
							Vict.: 37.6 ug/m3	-
	AAM	15ug/m3	11.9 ug/m3	-	11.5 ug/m3	-	Lanc.: 10.5 ug/m3	-
							Vict.: 13.7 ug/m3	-

Table 3.4-2: Air Quality Monitoring Data Summary (cont.)

Pollutant	Averaging Time	Standard*	2000 Peak Conc.	2000 No. Days Exceed	2001 Peak Conc.	2001 No. Days Exceed	2002 Peak Conc.	2002 No. Days Exceed
Peak Concentrations and Exceedances: South Central Coast Air Basin								
O_3	1-hour	0.09 ppm	0.128 ppm	2	0.129 ppm	2	0.132 ppm	1
CO	1-hour	20.00 ppm	6.2 ppm	0	8.3 ppm	0	6.2 ppm	0
	8-hour	9.00 ppm	4.29 ppm	0	3.08	0	El Rio: 1.2 ppm	0
							Simi: 2.3 ppm	0
NO2	1-hour	0.25 ppm	0.12 ppm	0	0.11 ppm	0	0.064 ppm	0
	AAM	0.05 ppm	0.02 ppm	-	0.19 ppm	-	0.017 ppm	0
SO2	1-hour	-	0.16 ppm	0	0.22 ppm	0	0.007 ppm	0
	3-hour	0.50 ppm					0.004 ppm	0
	24-hour	0.14 ppm	0.03 ppm	0	0.04	0	0.004 ppm	0
	AAM	0.03 ppm	0.004 ppm	-	0.005 ppm	-	0.001 ppm	0
PM10	24-hour	50.00 ug/m3	113 ug/m3	-	89 ug/m3	-	178 ug/m3	6
	AAM	50.00 ug/m3	33.8 ug/m3	-	31.5 ug/m3	-	43.2 ug/m3	-
PM2.5	24-hour	65 ug/m3	55.3 ug/m3	-	57.6 ug/m3	-	46.4 ug/m3	-
	AAM	15 ug/m3	10.3 ug/m3	-	14.9 ug/m3	-	14.6 ug/m3	-
Peak Concentrations and Exceedances: Salton Sea Air Basin								
O3	1-hour	0.09 ppm	0.17 ppm	5	0.17 ppm	15	0.16 ppm	5
	8-hour	0.08 ppm	0.11 ppm	33	0.11 ppm	54	0.12 ppm	55
CO	1-hour	20.00 ppm	19.9 ppm	0	16.0 ppm	0	19.2 ppm	0
	8-hour	9.00 ppm	15.47 ppm	6	12.33 ppm	6	11.56 ppm	3
NO2	1-hour	0.25 ppm	0.19 ppm	0	0.09 ppm	-	0.1 ppm	0
	AAM	0.05 ppm	0.016 ppm	-	0.017 ppm	-	0.017 ppm	-
PM10	24-hour	50.00 ug/m3	268 ug/m3	36	647 ug/m3	29	373 ug/m3	6
	AAM	50.00 ug/m3	95.2 ug/m3	-	86.2 ug/m3	-	34.3 ug/m3	-
	AGM	30.00 ug/m3	73.0 ug/m3	-	77.4 ug/m3	-	30.8 ug/m3	-
PM2.5	24-hour	65 ug/m3	84.2 ug/m3	-	60.2 ug/m3	-	46.5 ug/m3	-
	AAM	15 ug/m3	16.9 ug/m3	-	14.9 ug/m3	-	15.1 ug/m3	-

" – " means no data
ppm: parts per million
ug/m^3: micrograms per meter cubed
MD: Mojave Desert
AV: Antelope Valley
Lanc.: Lancaster
Vict.: Victorville

* Value is the most stringent of either the federal or state standard.

Source: SCAQMD's Annual Data Summary
VCAPCD's Annual Data Summary
MDAQMD's Annual Data Summary
ICAPCD's Annual Data Summary

Air Quality Plans and Programs

Under the CAA Amendments, areas designated as "non-attainment" are required to prepare regional air quality plans, which set forth a strategy for bringing an area into compliance with the

standards. Air quality plans developed to meet Federal requirements are included in an overall program referred to as the State Implementation Plan (SIP).

At the local level, the air quality management districts (AQMDs) and air pollution control districts (APCDs) are responsible for planning and implementation programs to attain Federal and State ambient air quality standards. As previously mentioned, there are currently four air basins and five air districts within the SCAG region, as described below.

- South Coast Air Basin (SCAB): covers the urbanized portions of the Los Angeles, Orange, Riverside, and San Bernardino counties and is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

- Ventura County portion of the South Central Coast Air Basin (SCCAB): covers the entire Ventura County and is within the jurisdiction of the Ventura County Air Pollution Control District (VCAPCD).

- Mojave Desert Air Basin (MDAB): covers the desert portions of the Los Angeles, Riverside, and San Bernardino counties. A small portion of this air basin is in Kern County and outside of the SCAG region. The SCAG portion of this air basin is under jurisdiction of three air districts:

    - Mojave Desert Air Quality Management District (MDAQMD) is the responsible agency for portions of the MDAB situated in San Bernardino County and the eastern part of Riverside County. The Riverside County portion is known as the Palo Verde Valley area.

    - SCAQMD is the responsible agency for a portion of the MDAB in Riverside County that is situated between the Salton Sea Air Basin (SSAB) and the Palo Verde Valley area.

    - Antelope Valley Air Quality Management District (AVAQMD) is the responsible agency for the Los Angeles County portion of the MDAB.

- Salton Sea Air Basin (SSAB): covers the entire County of Imperial and the eastern desert portion of Riverside County. The air basin is under the jurisdiction of two air districts:

    - Imperial County Air Pollution Control District (ICAPCD) is the responsible agency for the Imperial County portion of the SSAB.

    - SCAQMD is the responsible agency for the Riverside County portion of the SSAB situated between the SCAB and the MDAB (known as Coachella Valley).

South Coast Air Quality Management District (SCAQMD)

The regional agency responsible for developing air quality plans for the SCAB, and small portions of MDAB and SSAB, is the SCAQMD. SCAQMD is also the agency with permit authority over most types of stationary sources in the SCAB. SCAQMD exercises permit authority through its

Rules and Regulations, which has evolved to reflect state and federal requirements for "extreme" ozone nonattainment areas.

The SCAB is currently designated as a nonattainment area for state and national ambient air quality standards for ozone and respirable particulate matter (PM10).[29] The SCAB is still classified as a nonattainment area for the national CO standard and technically met the CO standards in 2002. The SCAQMD plans to request reclassification in the next few years. The SCAB is a "maintenance" area for the national NO2 standard, which denotes that it had once been a nonattainment area for that pollutant standard as well.

The CAA and the California Clean Air Act require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM10 standard). Plans are also required under federal law for areas designated as "maintenance" for national standards. Such plans are to include strategies for attaining or maintaining the standards. For the SCAB, current federal and state air quality planning requirements have been consolidated into a single plan, the *2003 Air Quality Management Plan* (2003 AQMP)[30], the latest in a series of plans that have been developed over the years. The 2003 AQMP was adopted by the SCAQMD Governing Board on August 1, 2003. Subsequently, ARB adopted the South Coast SIP on October 23, 2003, and the USEPA has yet to approve the SIP.

With respect to the national ozone standard, the SCAB has been further classified pursuant to the CAA Amendments of 1990 as an "extreme" ozone nonattainment area. "Extreme" ozone nonattainment areas must demonstrate attainment within 20 years of enactment (i.e., by 2010). The 2003 AQMP does not include an attainment date for the more stringent state ozone standard.

The ozone strategy included in the 2003 AQMP builds upon a regulatory foundation established over the last several decades to improve air quality conditions in the SCAB. The 2003 AQMP carries forward a number of control measures identified in previous plans related to specific categories of stationary sources, on-road mobile sources, and off-road mobile sources. Development of the 2003 AQMP was a collaborative effort by SCAQMD, EPA, ARB and SCAG. Each agency is responsible for emission reductions from the various source categories.

Previous air quality plans underestimated the air emissions inventory and targets, and the magnitude of the required emission reductions reported in the 2003 AQMP is far greater than that reported in previous air quality plans. The changes in the emissions inventory and emission targets are mainly due to improvements in air quality modeling and to a better understanding of motor vehicle emissions. The emissions target, also known as the "carrying capacity," has tightened and the mobile source emissions inventory has increased, which equates to a need for greater emission reductions. However, it is important to note that the increase in required

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29 California Environmental Protection Agency, California Air Resources Board. August 1998. *Proposed amendments to the designation criteria and amendments to the area designations for state ambient air quality standards, and proposed maps of the area designations for the state and national ambient air quality standards*.

30 South Coast Air Quality Management District. August 2003. *2003 air quality management plan*.

emission reductions does not mean an increase in measured air pollution in the region. At this time, the responsible agencies have not been able to identify the needed emission reductions to meet attainment of the federal standards. This emission reduction shortfall presents quite a challenge to the region, as most of the substantial and feasible emission reductions have already been implemented.

Under Section 182(e)(5) of the CAA, extreme ozone areas are allowed to allocate emission reductions to long-term, unidentified measures such as anticipated future technologies, commonly referred to as “black box” measures. However, reliance on the “black box” measures will cease in the near future, as measures need to be identified by 2007 and emissions reductions achieved by 2010.

Pursuant to the CAA Amendments of 1990, the SCAB has been designated as a “serious” PM10 nonattainment area for the national PM10 standard. The 2003 AQMP serves as the PM10 attainment demonstration plan. This PM10 plan relies upon control of area sources, known as “fugitive” dust sources, such as construction sites, heavily traveled publicly maintained unpaved roads, and agricultural activities. To regulate such sources in the SCAB, the regional air district has adopted Rule 403 (Fugitive Dust). The purpose of Rule 403 is to implement the fugitive dust control measures in the applicable federal PM10 Plan. The 2003 AQMP predicts that the national PM10 standard will be attained by 2006.

The SCAB is designated as a “serious” nonattainment area for the national CO standard. The 2003 AQMP replaces the 1997 attainment demonstration that lapsed at the end of 2002 and also serves as the basis for CO attainment demonstration plan. The CO attainment strategy depends upon stationary-source requirements, increasingly stringent mobile-source tailpipe emissions standards, and oxygenated gasoline fuel specifications. CO emissions have been substantially reduced over the past decade and that trend is expected to continue. However, the 2003 AQMP does not include a request for EPA to consider re-designation of the CO classification.

In July 1998, the SCAB was redesignated by EPA from “nonattainment” to “unclassified / attainment” for the national nitrogen dioxide standard. As such, the SCAB became a “maintenance” area for that standard, and the 2003 AQMP serves as the Nitrogen Dioxide Maintenance Plan. Maintenance of the nitrogen dioxide standard will depend upon continued implementation of stationary source regulations, reductions in mobile-source emissions, as well as new control measures that are included as part of the ozone attainment strategy.

Ventura County Air Pollution Control District (VCAPCD)

The regional agency responsible for developing air quality plans for the Ventura County portion of the SCCAB is the VCAPCD. Ventura County is located within the SCCAB, which also includes Santa Barbara and San Luis Obispo Counties. The SCCAB has been designated as a nonattainment area for the state ambient air quality standards for ozone and respirable particulate

matter (PM10).[31] Ventura County is also located within a subregion within the SCCAB that is designated as a nonattainment area for the national one-hour-average ozone standard. With respect to this national ozone standard, Ventura County has been further classified as a "severe-15" nonattainment area, which means that the area is allowed 15 years from enactment of the CAA Amendments of 1990 to reach attainment.

The CAA and the California Clean Air Act require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM10 standard). Such plans are to include strategies for attaining the standards. The applicable ozone air quality plan is the proposed *Air Quality Management Plan - Limited SIP Update* (proposed adoption in 2004).[32] This ozone plan is an update of prior state and federal ozone plans. It addresses both state and federal air quality planning requirements in a single document. This plan predicts attainment of the national ozone standard in Ventura County by 2005.

Mojave Desert Air Quality Management District (MDAQMD)

The MDAQMD is the agency responsible for developing the air quality plans in the San Bernardino County portion of the Mojave Desert Air Basin and Palo Verde Valley portion of Riverside County. MDAQMD is also the agency with permit authority over most types of stationary sources within its jurisdiction. MDAQMD exercises permit authority through its *Rules and Regulations*. The entire Mojave Desert Air Basin has been designated as a nonattainment area for the more stringent state ozone and PM10 standards. With respect to the national ozone standard, the Air Basin has been classified pursuant to the CAA Amendments of 1990 as "severe-17," which refers to "severe" ozone nonattainment areas that must demonstrate attainment within 17 years of enactment (i.e., by 2007).

The CAA and the California Clean Air Act require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM10 standard). Such plans are to include strategies for attaining the standards. There are three applicable air quality plans: two related to ozone and one related to the national PM10 standard. The applicable ozone air quality plans include the Federal Ozone Attainment Demonstration Plan[33] and the State Ozone Air Quality Attainment Plan.[34] These two ozone plans recognize the overwhelming influence of pollution transport from the South Coast Air Basin on ozone concentrations in the Mojave Desert Air Basin. These plans, however, also recognize that

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[31] California Environmental Protection Agency, California Air Resources Board. August 1998. *Proposed amendments to the designation criteria and amendments to the area designations for state ambient air quality standards, and proposed maps of the area designations for the state and national ambient air quality standards*.

[32] Ventura County Air Pollution Control District. Proposed Adoption March 2004. *2003 air quality management plan revision – Limited SIP update*.

[33] Mojave Desert Air Quality Management District. December 1994. *Post 1996 attainment demonstration and reasonable further progress plan*.

[34] Mojave Desert Air Quality Management District. January 1996. *Triennial revision to the 1991 air quality attainment plan*.

emissions from within the Air Basin also contribute incrementally to the ozone problem, and include a strategy for regulating local emissions sources. These ozone plans rely heavily on the reduction of ozone and ozone precursor emissions within the South Coast Air Basin in predicting attainment of both the national and state ozone standards by 2007.

The applicable PM10 air quality plan is the Federal PM10 Attainment Plan.[35] This federal PM10 plan proposes a reduction in the geographic extent of the federal PM10 nonattainment area and refers to this smaller area as the Mojave Desert Planning Area. The federal PM10 plan recognizes that the PM10 problem in the Mojave Desert Planning Area is caused by both fugitive dust sources operating within the area as well as region-wide wind-blown dust during moderate to high wind episodes. The federal PM10 plan predicts attainment of the national PM10 standard in the Mojave Desert Planning Area by the end of 2000.

Antelope Valley Air Quality Management District (AVAQMD)

Historically, Antelope Valley has been under the jurisdiction of the SCAQMD. In 1996, however, a state law established a local air quality management district; jurisdiction within Antelope Valley was transferred to in mid-1997. AVAQMD has permit authority over most types of stationary sources in Antelope Valley and exercises permit authority through its *Rules and Regulations*. AVAQMD adopted the SCAQMD's *Rules and Regulations*, i.e., with SCAQMD revisions through June 1997, as its interim *Rules and Regulations*, until it can develop and adopt its own rulebook. The AVAQMD is responsible for the Los Angeles County portion of the MDAB.

Several subregions within the Mojave Desert Air Basin, including Antelope Valley, have been designated as nonattainment areas for the national one-hour-average ozone standard, and the entire Mojave Desert Air Basin has been designated as a nonattainment area for the more stringent state ozone standard and for the state respirable particulate matter (PM10) standard.[36] With respect to the national ozone standard, Antelope Valley has been further classified pursuant to the CAA Amendments of 1990 as "severe-17," which refers to "severe" ozone nonattainment areas that must demonstrate attainment within 17 years of enactment (i.e., by 2007).

The Federal Clean Air Act and the California Clean Air Act require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM10 standard). Such plans are to include strategies for attaining the standards. For Antelope Valley, federal and state ozone planning requirements have been consolidated into a single plan, the AQMP for Antelope Valley[37] The 1994 AQMP recognizes that transport of ozone and ozone precursors from the SCAB is the primary cause of ozone nonattainment status in

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[35] Mojave Desert Air Quality Management District. July 1995. *Final mojave desert planning area, federal particulate matter (PM10) attainment plan*.

[36] California Environmental Protection Agency, California Air Resources Board. August 1998. *Proposed amendments to the designation criteria and amendments to the area designations for state ambient air quality standards, and proposed maps of the area designations for the state and national ambient air quality standards*.

[37] South Coast Air Quality Management District. September 1994. *1994 air quality management plan, appendix I-A, air quality management plan for Antelope Valley*.

Antelope Valley. Pollutants originating in the SCAB are transported along a route northward through Newhall Pass into Antelope Valley.

Given the importance of pollutant transport to the ozone problem in Antelope Valley, the 1994 AQMP relies heavily on ozone precursor emissions reduction measures in the SCAB to demonstrate attainment by 2007. However, the 1994 AQMP recognizes that local sources also contribute to the problem and seeks to reduce locally generated emissions through state and federal controls as well as implementation of a permit program for local stationary sources. Since Antelope Valley cannot meet the reasonable further progress requirements set forth under the CAA Amendments of 1990, this permit program must be equivalent to that required for the next higher classification of ozone nonattainment (i.e., for "extreme" nonattainment areas). The 1994 AQMP predicts that the control strategy will attain the national ozone standard by 2007 but does not include an attainment date for the more stringent state ozone standard. An update of the AQMP carries forward the 1994 AQMP control approach for Antelope Valley.[38]

Imperial County Air Pollution Control District (ICAPCD)

The ICAPCD is the local agency responsible for developing air quality plans. ICAPCD is also the agency with permit authority over most types of stationary sources in Imperial County. ICAPCD exercises permit authority through its *Rules and Regulations*. Imperial County is located within the Salton Sea Air Basin (SSAB), which also includes Coachella Valley in Riverside County. SSAB is currently designated as a nonattainment area for state ambient air quality standards for ozone and respirable particulate matter (PM10).[39]

The CAA and the California Clean Air Act require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM10 standard). Such plans are to include strategies for attaining the standards. Three air quality plans apply to Imperial County, two related to ozone and one related to the national PM10 standard.

In 1979, Imperial County was designated as a nonattainment area due to periodic violations of the national oxidant standard (which has been replaced by the current ozone standard). In response to that designation, Imperial County prepared a "nonattainment plan" in 1979 as required by federal law. The 1979 nonattainment plan became the federal ozone plan for Imperial County. It proposed the adoption and implementation of a set of stationary source control measures designed to attain the national ozone standard by the end of 1987. Under the CAA of 1990, Imperial County's designation of nonattainment for the national ozone standard was confirmed under provisions of the Act that also recognize the possibility that international border areas may face special problems in attaining the standard.

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[38] South Coast Air Quality Management District. November 1996. *1997 air quality management plan*.

[39] California Environmental Protection Agency, California Air Resources Board. August 1998. *Proposed amendments to the designation criteria and amendments to the area designations for state ambient air quality standards, and proposed maps of the area designations for the state and national ambient air quality standards*.

The state ozone plan, the *1991 Air Quality Attainment Plan*, was prepared in compliance with the California Clean Air Act.[40] The *1991 Air Quality Attainment Plan* recognizes the substantial influence of pollutant transport from Mexico and the SCAB on the ozone problem in Imperial County but also includes a stationary source control measure program to reduce emissions generated within the County. The state ozone plan normally is updated on a triennial basis, but since the SSAB (which includes Imperial County) has a unique air quality problem in that an overwhelming significant portion of its air pollution is from upwind sources, an update to the *1991 Air Quality Attainment Plan* will not be required until the significance of these upwind sources has been quantified.[41]

The applicable PM10 air quality plan is the federal *State Implementation Plan for PM10 in the Imperial Valley*.[42] The PM10 plan includes a range of measures intended to achieve attainment of the national PM10 standards in the Imperial Valley Planning Area, which covers the western three-quarters of the county.

An update to the PM10 SIP was delayed due to a lawsuit between the EPA and Earth Justice on behalf of the Sierra Club concerning international trans-border emissions. In October 2001, EPA granted Imperial County a waiver from more stringent air quality regulations and concluded that the County would have met the PM10 standards “but for” emissions emanating from Mexico (Section 179(b) of the CAA). This provision allows agencies to demonstrate, through complex modeling, that attainment would be achieved, absent emissions from Mexico. In October 2003 the US Court of Appeals for the Ninth Circuit ruled in favor of the plaintiff and ordered EPA to reclassify the Imperial Valley as “serious” for PM10. This ruling will require the agency to enact more stringent pollution control requirements for industry, agriculture and other pollution sources.

State Implementation Plans/Transportation Conformity Analysis

To comply with the CAA in achieving the NAAQS, the ARB develops the State Implementation Plans (SIPs) for federally designated non-attainment areas. In California, SIP development has been a joint effort of the local air agencies and the ARB, working with many other federal, state, and local agencies. Most of the local air agencies’ Air Quality Management Plans (AQMPs) are prepared in response to the federal and state requirements. Typically, these plans, which regulate both stationary and mobile sources of air pollution, include proposed rules and transportation control measures (TCMs) designed to achieve emission reductions to achieve standards. AQMPs/SIPs also include emission budgets that serve as emission limits for projects included in SCAG’s RTP.

The Intermodal Surface Transportation Efficiency Act (ISTEA) and the EPA’s Transportation Conformity Rule require that SCAG’s regional transportation plans, programs and projects conform to the applicable SIPs/AQMPs in federally designated non-attainment areas. The applicable SIPs/AQMPs are those approved by EPA. The first complete Transportation

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40 Imperial County Air Pollution Control District. April 1992. *1991 air quality attainment plan*.

41 Romero, Ray, Imperial County Air Pollution Control District, Personal Conversation, April 27, 1999.

42 Imperial County Air Pollution Control District. June 1993. *State implementation plan for PM10 in the Imperial Valley*.

Conformity Rule was published in November 1993, and has been amended a number of times. The latest Transportation Conformity Rule is found at 40 CFR parts 51 and 93, published on August 15, 1997. Proposed amendments to the rule are pending and are expected to be final in early 2004.

The Transportation Conformity Rule is a set of criteria and procedures for determining conformity to the SIPs for the transportation plans, programs, and projects funded or approved under Title 23 U.S.C., or the Federal Transit Act. It is also required under Section 176(c) of the 1990 CAA Amendments.

The Transportation Conformity Rule is only applicable to investments in projects for on-road mobile sources and the associated emissions caused by related transportation activities. Emissions generated by on-road mobile sources include various pollutants of which four pollutants are significantly caused by the on-road mobile source activities. These are: carbon monoxide (CO), ozone (O3), nitrogen dioxide (NO2), and particulate matter less than ten microns in size (PM10). These four pollutants are subject to the federal requirements for transportation conformity analysis.

Sensitive Receptors

Certain population groups are especially sensitive to air pollution and should be given special consideration when evaluating air quality impacts from projects. These population groups include children, the elderly, persons with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. As defined in the SCAQMD *CEQA Air Quality Handbook* (1993), a sensitive receptor to air quality is defined as any of the following land use categories: (1) long-term health care facilities; (2) rehabilitation centers; (3) convalescent centers; (4) retirement homes; (5) residences; (6) schools; (7) parks and playgrounds; (8) child care centers; and (9) athletic fields. As indicated in Figure 3.4-2 (located at the end of this document) the sensitive receptors within a quarter mile buffer of proposed plan projects include schools, nursing homes, and hospitals.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts of implementation of the proposed Plan on air quality.

Regional mobile source emissions are based on an analytical process, which involves a computer-simulated forecast of emissions from the 2004 RTP out to year 2030. Federal conformity regulations require emissions to be based on the Latest Planning Assumptions, which include the latest vehicle data (fleet, age, activity) and latest socio-economic data. SCAG is required to use updated emission budgets for all relevant criteria pollutants for each Federal nonattainment area.

Mobile source emissions are a product of mobile source emission factors and vehicle activity data. The mobile source emission factors are based on the latest version of the ARB mobile source emissions inventory model, EMFAC2002 (version 2.2, April 23, 2003). The emission

factors accommodate certain performance assumptions including projected fuel efficiency in 2030, future emissions control technologies, and mobility assumptions (e.g., vehicle speed and idling). Vehicle miles traveled (VMT) are predicted by the California Department of Transportation (Caltrans) Direct Travel Impact Model 4 (DTIM4.02) traffic model. Appendix 7.3 contains the summary tables of criteria pollutants emissions by county and air basin for the SCAG region.

Projected vehicle emissions expected from the southern California transportation network in 2030 under the Plan were compared with those estimated for current conditions. Cumulative impacts were assessed by comparing projected vehicle emissions in 2030 to the emission budgets established in the local air quality management plans. Future 2030 craft emissions emissions were also compared with the emissions from current conditions. Airport emissions were derived using the Federal Aviation Administration (FAA) Emission and Dispersion Model (EDMS) version 4.11.

Short-term impacts were evaluated. These impacts result from construction activities which include construction equipment emissions, dust from grading and earthmoving operations, and emissions from workers' vehicles traveling to and from construction sites.

The quantification of increased cancer risk resulting from construction and operation of a sample of projects in the 2004 RTP was performed using an EPA-approved pollutant dispersion model in conformance with SCAQMD diesel exhaust risk assessment procedures.[43] Guidance published by the California Office of Environmental Health Hazard Assessment (OEHHA) was used in the design of the scope of analysis.[44]

Based on the OEHHA guidance, the analyses of health impacts were limited to evaluations of increased cancer risks from the inhalation pathway. The OEHHA procedures state that "the potential cancer risk from inhalation exposure to diesel PM will outweigh the potential noncancer health impacts" and that "potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multipathway cancer risk from the speciated compounds. On the basis of these statements, the assessments of risks associated with Diesel exhaust emissions from construction and operation of freeway segments conducted here were limited to the cancer impacts from the inhalation route only.

Comparison with the No Project

The analysis of air quality includes a comparison between the expected future conditions with the Plan and the expected future conditions if no Plan were adopted. This evaluation is not included

43 South Coast Air Quality Management District. December 2002. *Health Risk Assessment Guidance for Analyzing Cancer Risks from Mobile Source Diesel Emissions*, http:/www/aqmd.gov/handbook/hra_guide.doc.

44 California Office of Environmental Health Hazard Assessment. October 2003. Appendix D: Risk Assessment Procedures to Evaluate Particulate Emissions from Diesel-Fueled Engines, *Air Toxic Hot Spots Program Risk Assessment Guidelines*; *http://www.oehha.ca.gov/air/hot_spots/pdf/HRAfinalapps.pdf.*

in the determination of the significance of impacts; however, it provides a meaningful perspective on the expected effects and benefits of the 2004 RTP.

Determination of Significance

The methodology for determining the significance of the impacts on air quality compares the expected future Plan conditions to the current conditions, as required in CEQA Guidelines Section 15126.2(a).

SIGNIFICANCE CRITERIA

For purposes of this regional analysis, the following criteria for determining significance have been applied:

- Projected long-term emissions of criteria pollutants are considered significant if they are greater than the current emission levels.
- Projected long-term emissions of toxic air contaminants are considered significant if they are equal to or greater than current emission levels.
- Projected short-term regional emissions (construction) are considered to be significant if they exceed the thresholds established by the local air districts.
- Localized impacts on sensitive receptors (short-term and long-term) were compared to the significance threshold values presented in the SCAQMD *CEQA Air Quality Handbook*, Chapter 10, Air Toxics. The SCAQMD guidelines for operation permit processing considers the following types of projects significant:
    - Any project involving the emission or threatened emission of a carcinogenic or toxic air contaminant identified in District Rule 1401 that exceeds the maximum individual cancer risk of one in one million, or 10 in one million if the project is constructed with the best available control technology for toxics (T-BACT) using the procedures in SCAQMD Rule 1401.
- Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. The local air quality management plans demonstrate attainment with the NAAQS and consider emissions from all sources (stationary, mobile and area sources) in their attainment demonstrations. A project that has not been accommodated in the mobile source emissions budget will have a significant cumulative impact unless emissions are offset.

PROJECT IMPACTS AND MITIGATION MEASURES

Analysis of the potential air quality impacts of the 2004 RTP was conducted for both the construction and post-construction (operation) phases of the Plan. For each of these phases, an analysis was performed for regional emissions. The analysis for both operations and construction

impacts also addresses local area concentrations of TACs. A screening level Health Risk Assessment was conducted for project operation and construction phases of the Plan in accordance with SCAQMD, ARB and USEPA guidelines. Cumulative impacts were also assessed.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.4-1: Long-term (Operational) Regional Impacts

- **Impact 3.4-1a: Under the Plan, PM10 emissions from on-road mobile sources would increase when compared to current conditions.**

- **Impact 3.4-1b: Under the Plan, emissions of ROG, NOX, CO, SOX and TACs would decrease when compared to current conditions.**

Direct, long-term impacts were assessed and are described in detail below. Projected long-term emissions of criteria pollutants are considered significant if they are greater than the current emission levels (2000 base year). Year 2000 represents current conditions, as it is the best practical, available and most accurate portrayal of current conditions.

Criteria Pollutant Emissions Analysis

To assess the effectiveness of the improvements proposed in the 2004 RTP, estimated air emissions for the year 2030 with the 2004 RTP were compared with the current conditions. The calculated emissions were compiled for each non-attainment area and SCAB County (SCAB portion only).

2004 RTP compared to current conditions

Table 3.4-3 summarizes emissions by nonattainment areas in the region. Under the Plan, emissions of ROG, NOX, CO and SOX for all nonattainment areas would decrease, when compared to current conditions. This would be considered a **beneficial** impact. Under the 2004 RTP, all nonattainment areas would experience elevated emissions of PM10. Antelope Valley would experience the greatest increase (75%) in PM10 emissions under the Plan. The SCAB would experience the smallest increase (4%) in PM10 emissions under the Plan. Emissions of PM10 for all nonattainment areas combined would increase 8% under the Plan, when compared to current conditions. The increase in emissions of PM10 would be a **significant** impact.

Table 3.4-4 summarizes the current and projected criteria pollutant emissions estimated for the 2004 RTP as compared to the current conditions by SCAB county. As shown in Table 3.4-4, under the Plan emissions of ROG, NOX, CO and SOX for all counties would decrease when

Table 3.4-3: Criteria Pollutant Emissions By Nonattainment Area
Plan Emissions in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	Current Conditions	412.61	21.28	8.07	14.37	7.54	10.47	474.34
	Plan	73.07	4.22	1.65	3.15	1.79	5.69	89.57
	Difference	-339.54	-17.06	-6.42	-11.22	-5.75	-4.78	-384.77
	% Difference	-82%	-80%	-80%	-78%	-76%	-46%	-81%
NOX	Current Conditions	737.4	30.64	12.84	31.17	15.72	13.65	841.42
	Plan	120.33	4.38	2.27	7.05	3.39	7.79	145.21
	Difference	-617.07	-26.26	-10.57	-24.12	-12.33	-5.86	-696.21
	% Difference	-84%	-86%	-82%	-77%	-78%	-43%	-83%
CO	Current Conditions	4222.49	194.27	86.74	169.97	88.96	105.86	4868.29
	Plan	538.1	25.14	14.4	26.89	16.02	41.91	662.46
	Difference	-3684.39	-169.13	-72.34	-143.08	-72.94	-63.95	-4205.83
	% Difference	-87%	-87%	-83%	-84%	-82%	-60%	-86%
PM10	Current Conditions	19.08	0.76	0.32	0.69	0.39	0.41	21.65
	Plan	19.8	0.86	0.56	1.01	0.64	0.59	23.46
	Difference	0.72	0.1	0.24	0.32	0.25	0.18	1.81
	% Difference	**4%**	**13%**	**75%**	**46%**	**64%**	**44%**	**8%**
SOX	Current Conditions	4.91	0.18	0.08	0.19	0.11	0.11	5.58
	Plan	2.44	0.11	0.06	0.12	0.08	0.08	2.89
	Difference	-2.47	-0.07	-0.02	-0.07	-0.03	-0.03	-2.69
	% Difference	-50%	-39%	-25%	-37%	-27%	-27%	-48%

Source: Southern California Association of Governments; EMFAC2002, DTIM 4.02

compared to the current condition emissions. PM10 emissions would decrease by 4% in Los Angeles County under the Plan. All other SCAB counties would experience an increase in PM10 emissions. Overall, emissions of PM10 for all SCAB counties combined would increase approximately 4% under the Plan. The increase in regional emissions of PM10 would be considered a **significant** impact.

2004 RTP compared to No Project

For illustrative purposes, Table 3.4-5 summarizes the differences between No Project and projected criteria pollutant emissions estimated for the 2004 RTP by nonattainment area. When compared to the No Project emissions, the 2004 RTP would result in fewer emissions of ROG, PM10, CO and SOX for all nonattainment areas. Emissions of NOX would increase 1% for all nonattainment areas combined, with the greatest increases experienced in Victor Valley and Coachella Valley.

Table 3.4-4: SCAB Criteria Pollutant Emissions By County (SCAB portion only) Plan Emissions in 2030 Compared to Current Conditions (Emissions in 2000) (in Tons per Day)						
		LA	**SB**	**Orange**	**Riverside**	**Sum**
ROG	Current Conditions	257.99	37.94	76.18	40.51	412.62
	Plan	40.37	8.09	14.45	10.16	73.07
	Difference	-217.62	-29.85	-61.73	-30.35	-339.55
	% Difference	-84%	-79%	-81%	-75%	-82%
NOX	Current Conditions	453.29	78.25	112.28	93.58	737.4
	Plan	68.92	14.95	17.43	19.02	120.32
	Difference	-384.37	-63.3	-94.85	-74.56	-617.08
	% Difference	-85%	-81%	-84%	-80%	-84%
CO	Current Conditions	2651.92	378.73	751.59	440.25	4222.49
	Plan	311.5	53.34	97.77	75.49	538.1
	Difference	-2340.42	-325.39	-653.82	-364.76	-3684.39
	% Difference	-88%	-86%	-87%	-83%	-87%
PM10	Current Conditions	11.79	1.83	3.23	2.23	19.08
	Plan	11.29	2.09	3.48	2.94	19.8
	Difference	-0.5	0.26	0.25	0.71	0.72
	% Difference	-4%	**14%**	**8%**	**32%**	**4%**
SOX	Current Conditions	2.95	0.53	0.8	0.64	4.92
	Plan	1.35	0.28	0.43	0.38	2.44
	Difference	-1.6	-0.25	-0.37	-0.26	-2.48
	% Difference	-54%	-47%	-46%	-41%	-50%
Source: Southern California Association of Governments; EMFAC2002, DTIM 4.02						

Table 3.4-6 summarizes the differences between No Project and projected criteria pollutant emissions estimated for the 2004 RTP by SCAB county. When compared to the No Project emissions, the 2004 RTP would result in fewer emissions of ROG, PM10, CO and SOX for all SCAB counties. Emissions of NOX would increase 1% for all counties combined, with the greatest increases experienced in San Bernardino and Riverside Counties (SCAB portions only).

Toxic Air Contaminant (TAC) Emissions

Toxic air contaminants (TACs) include airborne substances other than the criteria pollutants that are known to cause cancer or otherwise harm human health. TAC emissions are also regulated by the local air quality management districts. Much of the effort toward controlling TACs has concentrated on point source emissions from businesses handling hazardous materials. However, mobile sources are responsible for approximately half of the total lifetime cancer risk attributed to air toxics.[45]

45 United States Environmental Protection Agency. Control of emissions of Hazardous Air Pollutants from Mobile Sources. *Federal Register*, 66:17234-17237, March 29, 2001.

Table 3.4-5: Criteria Pollutant Emissions By Nonattainment Area Plan Emissions in 2030 Compared to No Project Emissions in 2030 (in Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	No Project	75.92	4.36	1.83	3.15	1.83	5.72	92.81
	Plan	73.07	4.22	1.65	3.15	1.79	5.69	89.57
	Difference	-2.85	-0.14	-0.18	0	-0.04	-0.03	-3.24
	% Difference	-4%	-3%	-10%	0%	-2%	-1%	-3%
NOX	No Project	118.99	4.44	2.35	6.88	3.33	7.81	143.8
	Plan	120.33	4.38	2.27	7.05	3.39	7.79	145.21
	Difference	1.34	-0.06	-0.08	0.17	0.06	-0.02	1.41
	% Difference	1%	-1%	-3%	**2%**	**2%**	0%	**1%**
CO	No Project	571.32	26.18	16.36	27.33	16.52	42.31	700.02
	Plan	538.1	25.14	14.4	26.89	16.02	41.91	662.46
	Difference	-33.22	-1.04	-1.96	-0.44	-0.5	-0.4	-37.56
	% Difference	-6%	-4%	-12%	-2%	-3%	-1%	-5%
PM10	No Project	21.11	0.89	0.64	1.04	0.65	0.59	24.92
	Plan	19.8	0.86	0.56	1.01	0.64	0.59	23.46
	Difference	-1.31	-0.03	-0.08	-0.03	-0.01	0	-1.46
	% Difference	-6%	-3%	-13%	-3%	-2%	0%	-6%
SOX	No Project	2.56	0.11	0.07	0.12	0.08	0.08	3.02
	Plan	2.44	0.11	0.06	0.12	0.08	0.08	2.89
	Difference	-0.12	0	-0.01	0	0	0	-0.13
	% Difference	-5%	0%	-14%	0%	0%	0%	-4%

Source: Southern California Association of Governments; EMFAC2002, DTIM 4.02

The EPA has designated the following 21 chemicals as mobile-source air toxics emitted by motor vehicles, locomotives, aircraft, ships and various types of nonroad equipment: 1,3-butadiene, acetaldehyde, acrolein, arsenic compounds, benzene, chromium compounds, diesel particulate matter (DPM) plus diesel exhaust organic gases, dioxin/furans, ethylbenzene, formaldehyde, lead compounds, manganese compounds, mercury compounds, MTBE (methyl tertiary butyl ether), naphthalene, n-hexane, nickel compounds, POM (polycyclic organic matter), styrene, toluene and xylene.

Since ROG emissions from mobile sources generally capture the majority of the volatile organic TAC contribution from the transportation network, ROG emissions are a good indicator of the volatile organic portion of mobile source TACs. As shown in Tables 3.4-3 and 3.4-4 and discussed previously, ROG emissions are expected to decrease under the Plan and therefore, the impact of the Plan on the volatile organic portion of TACs would be considered **beneficial**.

In 1998, the particulate portion of diesel exhaust was identified as a TAC by the California EPA. Recent studies conducted by the SCAQMD have attributed 70 percent of the potential health

Table 3.4-6: SCAB Criteria Pollutant Emissions By County (SCAB portion only) Plan Emissions in 2030 Compared to No Project Emissions in 2030 (in Tons per Day)						
		LA	**SB**	**Orange**	**Riverside**	**Sum**
ROG	No Project	42.52	8.10	14.79	10.51	75.92
	Plan	40.37	8.09	14.45	10.16	73.07
	Difference	-2.15	-0.01	-0.34	-0.35	-2.85
	% Difference	-5%	0%	-2%	-3%	-4%
NOX	No Project	69.14	14.13	17.17	18.54	118.98
	Plan	68.92	14.95	17.43	19.02	120.32
	Difference	-0.22	0.82	0.26	0.48	1.34
	% Difference	0%	**6%**	**2%**	**3%**	**1%**
CO	No Project	334.16	54.70	101.75	80.72	571.33
	Plan	311.50	53.34	97.77	75.49	538.1
	Difference	-22.66	-1.36	-3.98	-5.23	-33.23
	% Difference	-7%	-2%	-4%	-6%	-6%
PM10	No Project	12.21	2.12	3.61	3.17	21.11
	Plan	11.29	2.09	3.48	2.94	19.8
	Difference	-0.92	-0.03	-0.13	-0.23	-1.31
	% Difference	-8%	-1%	-4%	-7%	-6%
SOX	No Project	1.44	0.28	0.44	0.4	2.56
	Plan	1.35	0.28	0.43	0.38	2.44
	Difference	-0.09	0	-0.01	-0.02	-0.12
	% Difference	-6%	0%	-2%	-5%	-5%
Source: Southern California Association of Governments; EMFAC2002, DTIM 4.02						

risks from TACs in the SCAB to the particulate portion of diesel emissions,[46] also referred to as diesel particulate matter (DPM). Since PM10 emissions from heavy-duty vehicles (diesel-fueled) generally capture the DPM contribution from the transportation network, these PM10 emissions are a reasonable indicator of the DPM portion of the mobile source TACs.

Table 3.4-7 summarizes PM10 emissions from heavy trucks. Heavy-duty truck PM10 exhaust emissions include most of the diesel-related TAC emissions. As shown in the table, PM10 emissions from heavy-duty trucks would be expected to decrease from 2000 levels for each nonattainment area. Table 3.4-7 also shows the PM10 emissions exclusively from heavy-duty vehicle exhaust. The emissions projections do not include newly proposed measures which would be expected to further reduce diesel particulate emissions. This comparison gives a good indication of trends in TAC emissions from the transportation network. As a result of the anticipated decline in TAC emissions, the 2004 RTP would potentially have a **beneficial** impact with respect to regional TAC emissions.

46 SCAQMD, *Multiple Air Toxics Exposure Study in the South Coast Air Basin*, MATES-II, March 2000.

Table 3.4-7: PM10 Emissions for Heavy-Duty Trucks per County (Tons per Day)						
	SCAB	**Ventura County**	**Antelope Valley**	**Victor Valley**	**Coachella Valley**	**Imperial County**
2000 Base Year	6.70	0.20	0.08	0.27	0.13	0.22
2030 No Project	3.58	0.10	0.05	0.21	0.10	0.21
2030 Plan	3.57	0.10	0.05	0.22	0.10	0.21
PM Exhaust only						
2000 Base Year	5.88	0.16	0.06	0.23	0.11	0.21
2030 No Project	2.16	0.05	0.03	0.12	0.06	0.15
2030 Plan	2.12	0.05	0.03	0.12	0.06	0.21
Source: Southern California Association of Governments; DTIM 4.02, EMFAC2002						

Vehicle Miles Traveled

The 2004 RTP highway and arterial projects would increase the capacity of the existing transportation network. The majority of improvements would be categorized under the TCM Categories of the 2003 SCAQMP to meet target emissions reductions. Most of the highway capacity improvements include widening existing highways to provide more lanes, reducing delays and congestion. Only a few new highway links are proposed in the plan. Much of the public transit improvements would include improved bus rapid transit and improved commuter rail services. However, single-passenger highway travel will continue to provide the backbone of the transportation network in the future, despite the increase in projected transit ridership. Projected VMT is expected to increase on highways and arterials throughout the SCAG region, corresponding with population growth. See Table 3.3-11 for projections of regional VMT.

Mitigation Measures

Emissions of particulate matter are directly related to growth and VMT. Regardless of how clean a vehicle operates, the vast majority of PM10 emissions from on-road sources is generated from re-entrained dust on paved roads and is a function of the vehicle miles traveled. Mitigation measures that reduce VMT are proposed. Additional measures to control fugitive dust and transportation-related PM10 are outlined in the 2003 SCAQMP and include control methods such as watering, chemical stabilization, paving, revegetation, track-out control, construction project signage, sweeping and motor vehicle controls.

MM 3.4-1a: Additional mitigation measures are hereby incorporated by reference from the following air quality management plans:

- 2003 South Coast State Implementation Plan (SIP)

- Ventura County Air Quality Management Plan (2004 AQMP – Limited SIP Update, Scheduled for adoption in March 2004)
- Mojave Desert Air Quality Management Plan (1996)
- Antelope Valley Air Quality Management Plan (1994/97)
- Imperial County Air Quality Management Plan (1991 and 1993)

MM 3.4-1b: The 2003 SCAQMP control measures consist of 1) SCAQMD's Stationary and Mobile Source Control Measures; 2) State and Federal Source Control Measures proposed by CARB; and 3) Transportation Strategy and Control measures provided by SCAG. These control measures are based on the implementation of short-term, defined measures as well as long-term measures which will rely on new technologies to further reduce emissions. The SCAQMP includes estimated emissions reductions based on these short-term and long-term programs. The transportation improvements proposed for the short-term emissions reductions are grouped in the SCAQMP under Transportation Control Measure (TCM) project categories and include the following measures:

- High Occupancy Vehicle (HOV) Measures: New HOV lanes, HOV bypasses and connectors, interchanges, High Occupancy Toll (HOT) Lanes;
- Transit and System Management Measures: Transit, Intermodal Transfer Facilities, Non-motorized Transportation Mode Facilities; and
- Information-based Transportation Strategies: Marketing for Rideshare and other services, Intelligent Transportation Systems, Telecommuting Programs and Real-time rail, transit or freeway information systems.

The 2004 RTP has been prepared to facilitate implementation of the transportation control measures outlined in the 2003 SCAQMP. The 2004 RTP incorporates both the capital and non-capital improvements recommended by the SCAQMP.

ARB's strategy, outlined in the South Coast SIP, includes the following elements:

- Set technology forcing new engine standards;
- Reduce emissions from the in-use fleet;
- Require clean fuels, and reduce petroleum dependency;
- Work with USEPA to reduce emissions from federal and state sources; and
- Pursue long-term advanced technology measures.

Significance After Mitigation

After implementation of all feasible mitigation measures and incorporation of measures as described above, the project would most likely have a **significant** and unavoidable impact on regional air quality.

Impact 3.4-2: Long-term (Operational) Localized Impacts

Freeway operations under the Plan would be likely to exceed the locally acceptable cancer risk of 1 in one million.

Localized impacts are addressed for the operational phase of the 2004 RTP. Mobile sources are sources of carcinogenic pollutants and are responsible for diesel exhaust. Areas near roadways typically register elevated concentrations of air toxics, and these areas are known as “hot spots.” Exposure to such “hot spots” may lead to adverse health effects. The proximity to roadways is an important factor in assessing exposure. Typically, concentrations drop off dramatically (around 90 percent) after the first quarter mile from the roadway.

Currently, there is a wide range of variability of concentrations throughout the SCAG region. The highest pollutant concentrations are found at the Ports, LAX, and along major corridors. The cancer risk in many of these areas is greater than the local air districts’ acceptable risk of 1 in a million.

To determine the health impacts to the general public living near sections of freeway that would be affected under the 2004 RTP, a screening risk assessment was conducted to estimate increased cancer risks in areas near a sample of projects. The results indicate that cancer risk resulting from operation of freeway sections would be likely to exceed the acceptable threshold of one in a million at locations close to freeways. This impact would be considered significant.

However, the analysis also indicates that cancer risk levels in 2030 with implementation of the 2004 RTP would be substantially lower than cancer risk in 2000, primarily as a result of improvements in motor vehicle exhaust controls. The analysis also indicate that risk levels in 2030 without the 2004 RTP (the No Project) would be slightly higher than with the 2004 RTP.

Mitigation Measures

Same mitigation measures as Impact 3.4-1.

Significance After Mitigation

After implementation of all feasible mitigation measures the project would most likely have a **significant** and unavoidable impact.

Impact 3.4-3: Short-term (Construction) Regional Impacts

Under the Plan, construction activities would increase short-term air emissions.

The 2004 RTP would involve substantial construction to implement the proposed projects. The construction activities would create short-term temporary air emissions from the following activities: (1) demolition; (2) site preparation operations (grading/excavation); (3) fuel combustion from the operation of construction equipment; (3) delivery and hauling of construction materials and supplies to and from the site; (4) the use of asphalt or other oil based substances during the final construction phases; and (5) travel by construction workers to and from the site. Construction emissions are based on the type and magnitude of development that would be accommodated under the project, the timeline for construction, the mix of construction equipment required to build the project, and emission factors from the SCAQMD *CEQA Air Quality Handbook* and USEPA's AP-42. Emissions of NOX, VOC, and PM10 generated would be based on the number and type of operating vehicles and the number of hours of operation. Fugitive emissions would be based on the amount of soil disturbed, type of soil, duration, type of activity (grading, excavation, etc.), haul trips and other factors.

Most improvements in transit and system management (signal synchronization, striping, etc.) do not involve construction and are not expected to generate short-term impacts. However, a large number of the projects in the 2004 RTP would involve construction activities (new goods movement capacity enhancements, arterials, rail systems). It is very likely that some of these projects would be under concurrent construction throughout the region. Short-term impacts generated from the implementation of the 2004 RTP are expected to be significant.

The SCAQMD has developed thresholds of significance for individual construction projects within their jurisdiction as follows:

- Carbon Monoxide .....24.75 tons per quarter
- Reactive Organic Compounds .....2.5 tons per quarter
- Nitrogen Oxides.....2.5 tons per quarter
- Sulfur Oxides.....6.75 tons per quarter
- Particulates (10 microns) .....6.75 tons per quarter

These thresholds are established in the *CEQA Air Quality Handbook* prepared by the SCAQMD in 1993. Other air management districts within the SCAG region have adopted similar thresholds for individual construction projects for criteria pollutants. Project-level analysis conducted for CEQA purposes would estimate construction emissions for each project based on project specifics. Mitigation measures to reduce air quality impacts would be established in project-specific environmental documents. The construction of highways or arterials would be expected to generate a significant amount of construction activity and therefore exceed the significance thresholds established in the CEQA Handbook. This would create a significant short-term impact. These impacts would occur in localized areas depending on the construction site locations.

Individual projects would be required to implement mitigation measures to reduce construction emissions.

Other construction impacts include potential construction-related traffic impacts due to congestion from lane closures. These impacts should be addressed at the project level analysis.

Mitigation Measures

Compliance with SCAQMD Rule 403 (Fugitive Dust) will reduce emissions of fugitive dust from construction activities. The following additional air quality mitigation measures set forth a program of air pollution control strategies designed to reduce the project's air quality impacts from construction activities.

Land Clearing/Earth-Moving:

MM 3.4-3a: Apply water or dust suppressants to exposed earth surfaces to control emissions.

MM 3.4-3b: All excavating and grading activities shall cease during second stage smog alerts and periods of high winds.

MM 3.4-3c: All trucks hauling dirt, sand, soil, or other loose materials off-site shall be covered or wetted or shall maintain at least two feet of freeboard (i.e., minimum vertical distance between the top of the load and the top of the trailer).

Paved Surfaces:

MM 3.4-3d: All construction roads that have high traffic volumes, shall be surfaced with base material or decomposed granite, or shall be paved or otherwise be stabilized.

MM 3.4-3e: Public streets shall be cleaned, swept or scraped at frequent intervals or at least three times a week if visible soil material has been carried onto adjacent public roads.

MM 3.4-3f: Construction equipment shall be visually inspected prior to leaving the site and loose dirt shall be washed off with wheel washers as necessary.

Unpaved Surfaces:

MM 3.4-3g: Water or non-toxic soil stabilizers shall be applied as needed to reduce off-site transport of fugitive dust from all unpaved staging areas and other unpaved surfaces.

MM 3.4-3h: Traffic speeds on all unpaved surfaces shall not exceed 25 mph.

Other Construction Mitigation Measures

MM 3.4-3i: Low sulfur or other alternative fuels shall be used in construction equipment where feasible.

MM 3.4-3j: Deliveries related to construction activities that affect traffic flow shall be scheduled during off-peak hours (e.g. 10:00 A.M. and 3:00 P.M.) and coordinated to achieve consolidated

truck trips. When the movement of construction materials and/or equipment impacts traffic flow, temporary traffic control shall be provided to improve traffic flow (e.g., flag person).

MM 3.4-3k: To the extent possible, construction activity shall utilize electricity from power poles rather than temporary diesel power generators and/or gasoline power generators.

MM 3.4-3l: Revegetate exposed earth surfaces following construction.

Significance After Mitigation

After implementation of all feasible mitigation measures and incorporation of project features as described above, activities related to construction of the project would most likely exceed emission thresholds for regional NOX, CO, PM10, SO2, and ROG. Therefore, construction of the 2004 RTP would have a **significant** and unavoidable impact on regional air quality.

Impact 3.4-4: Short-term Localized Impacts

The cancer risk associated with construction projects under the Plan would likely exceed the locally acceptable cancer risk of 1 in one million.

Localized impacts were evaluated for the construction phase of the 2004 RTP. Construction vehicles are sources of carcinogenic pollutants and are also responsible for diesel exhaust.

To determine the health impacts to the general public living near sections of freeway that would be affected by the 2004 RTP, a screening risk assessment was conducted to estimate increased cancer risks in areas near a sample of projects. The results indicate that cancer risk resulting from construction activities would be likely to exceed the acceptable threshold of one in a million at locations close to freeways. This is the case for the maximum one-year cancer risk, which reflects the temporary nature of construction. When this same risk is spread over a 70-year lifetime (in accordance with health risk assessment procedures), risk levels are much lower, approaching the threshold of one in a million. Overall, this impact would be considered **significant**.

Mitigation Measures

MM 3.4-4: Construction equipment shall be equipped with diesel particulate traps. Low sulfur or other alternative fuels shall be used in construction equipment where feasible.

Significance After Mitigation

After implementation of all feasible mitigation measures and incorporation of measures as described above, the project would most likely have a **significant** and unavoidable impact on regional air quality.

Impact 3.4-5: Cumulative air quality impacts

Under the Plan criteria pollutant emissions would be less than the applicable emission budgets.

The analysis of regional cumulative impacts assessed the impacts of the 2004 RTP, including consideration of potential indirect effects in conjunction with other plans, programs, projects and policies that affect ambient air quality. Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. Consistency is demonstrated through the conformity analysis.

Regional emissions conformity is achieved if the projected emission inventories are within the budget emissions for each air basin for each milestone year. In addition to the regional emissions conformity, the RTP must show: 1) that the implementation of the Transportation Control Measures (TCM) contained in the SIPs is on schedule; 2) that the Financial Constraint Determination has been adequately prepared; and 3) that the required Interagency Consultation and Public Involvement has been adequately implemented.

The emissions budgets reflected in the AQMPs/SIPs function as the applicable emission budgets for the ozone conformity analysis for all non-attainment areas in the SCAG region. The conformity determinations based on the emission budgets for each air basin in the SCAG region, and conducted as part of the 2004 RTP development process, provide reasonable analysis of cumulative air quality impacts of the Plan. The regional transportation plan should conform to the emissions budgets established in each applicable SIP/AQMP. Federal Conformity regulations require emissions to be based on the Latest Planning Assumptions which include the latest vehicle data (fleet, age, activity) and latest socio-economic data. A conformity determination must be made for each nonattainment area in the Region.

A regional analysis estimates the emissions from the implementation of the 2004 RTP and compares them to the emission budgets identified in the AQMPs/SIPs. If the estimated emissions from the 2004 RTP are greater than the emissions budget then the plan would not conform. In the absence of an emission budget, an emission reduction test, such as the build/no build test is applied. In order to pass the build/no-build test, it must be demonstrated that emissions in the build scenario are less than the no-build scenario. Table 3.4-8 outlines the emission budgets required for each air basin and pollutant, the regional emissions analysis technique and the applicable SIPs.

The applicable emissions budgets in the SCAG region are established by air basin, by air district, by pollutant and by years of analysis (milestone, attainment, and planning horizon years) and are presented in Tables 3.4-9 through 3.4-18. The 2004 RTP conformity analysis has been prepared separate from this Program EIR and can be found in Appendices of the 2004 RTP. The analysis concludes that the plan conforms to federal and state requirements for meeting attainment goals throughout the SCAG region. Therefore, cumulative regional air quality impacts are considered to be **less than significant**. Following is a summary of the findings.

Table 3.4-8: 2003 SIPs (Emissions Budgets) and Regional Emission Analysis

Air Basin/Non-attainment Area	Pollutant	Regional Emission Analysis	SIP/AQMP Status (Emissions Budgets)
SCAB	Ozone, CO, NO2, PM10	Budget tests	2003 SCAQMP adoption 8/01/03 2003 South Coast SIP adoption 10/23/03
Ventura County (**SCCAB**)	Ozone	Budget tests	VCAQMP adoption scheduled for 2004
Southeast Desert Modified Antelope Valley (MDAB) San Bernardino Co. (MDAB) Coachella Valley (SSAB)	Ozone	Budget tests	Coachella portion of budget adopted by SCAQMD 11/6/03. Full budget adoption by MDAQMD Board scheduled for 2004
San Bernardino Co. (**MDAB**)	PM10	Build/no-build tests	No SIP scheduled for this area
Searles Valley (**MDAB**)	PM10	Build/no-build tests	No SIP scheduled for this area
Coachella Valley (**SSAB**)	PM10	Budget tests	2003 SCAQMP adopted 8/01/03 ARB approved in October 2003
Imperial Co. (**SSAB**)	PM10	Build/no-build tests	A SIP will be developed in future in compliance with recent court ruling
Imperial Co. (**SSAB**)	Ozone	Build/no-build tests	No SIP required for this area

SCAB: South Coast Air Basin, **SCCAB**: South Central Coast Air Basin, **MDAB**: Mojave Desert Air Basin, **SSAB**: Salton Sea Air Basin – **SCAQMD**: South Coast Air Quality Management District, **VCAPCD**: Ventura County Air Pollution Control District

Table 3.4-9: South Coast Air Basin (SCAB)
Ozone Emissions Analysis (tons/day)
Summer Temperatures - SCAB

Ozone Precursor		2005	2008	2010	2020	2030
ROG (VOC)	Budget	263	216	155	155	155
	Draft 2004 RTP	261.512	213.344	150.557	107.458	72.581
NOX	Budget	546	464	352	352	352
	Draft 2004 RTP	545.306	460.718	348.913	185.009	119.941

Regional emissions budget generated using EMFAC 2002. RTP emissions must be equal or less than budget (2010 – attainment year) – Emissions budgets based on the SCAQMD approved 2003 AQMP/SIP (8/01/03)

Table 3.4-10: South Coast Air Basin (SCAB)
Nitrogen Dioxide (NO_2) Emissions Analysis (tons/day)
Winter Temperatures – SCAB

NO2 Precursor		2003	2005	2010	2020	2030
NOX	Budget	686	686	686	686	686
	Draft 2004 RTP	684.635	617.202	448.327	206.409	132.162

Regional emissions generated using EMFAC 2002. RTP emissions must be equal or less than budget. (1994 - attainment year) - Emissions budgets based on the SCAQMD approved 2003 AQMP/SIP (8/01/03)

Table 3.4-11: South Coast Air Basin (SCAB)
Carbon Monoxide (CO) Emissions Analysis (tons/day)
Winter Temperatures – SCAB

CO	2002	2005	2010	2020	2030
Budget	3,361	3,361	3,361	3,361	3,361
Draft 2004 RTP	3,350.68	2,629.29	1,801.62	861.81	526.86

Regional emissions generated using EMFAC 2002. RTP emissions must be equal or less than budget. (2000 – attainment year) - Emissions budgets based on the SCAQMD approved 2003 AQMP (8/01/03)

Table 3.4-12: South Coast Air Basin (SCAB)
Particulate Matter (PM10) Emissions Analysis (tons/day)
Annual Average Temperatures – SCAB

PM10 Precursor		2003	2006	2010	2020	2030
ROG (VOC)	Budget	311	251	251	251	251
	Draft 2004 RTP	309.454	247.378	188.417	160.718	72.971
NOX	Budget	635	549	549	549	549
	Draft 2004 RTP	634.328	546.787	368.383	193.549	124.831
Primary (PM)	Budget	168	166	166	166	166
	Draft 2004 RTP	164.579	165.958	161.926	159.253	158.174

Regional emissions generated using EMFAC 2002. To pass, RTP emissions must be equal or less than budget. (2006 – attainment year) - Emissions budgets based on the SCAQMD approved 2003 AQMP (8/01/03)
Note: For primary PM10 precursor, the 2003 PM10 AQMP allows use of the Backstop Measure (TCB-01) for additional regional emission reductions beyond the attainment year - not exceeding 9 tons/day and 16 t/d in the years 2020 and 2030 respectively

Table 3.4-13: Ventura County - South Central Coast Air Basin (VC/SCCAB)
Ozone (tons/day)
Summer Temperatures - SCCAB-Ventura County

Ozone Precursors		2005	2010	2020	2030
ROG (VOC)	Budget	14.30	14.30	14.30	14.30
	Draft 2004 RTP	14.24	10.76	6.32	4.22
NOX	Budget	21.40	21.40	21.40	21.40
	Draft 2004 RTP	21.36	15.18	6.85	4.38

Regional emissions generated using EMFAC 2002. To pass, RTP emissions must be equal or less than budget. (2005 – attainment year)

Table 3.4-14: Southeast Desert Modified Area
Ozone (tons/day)
Summer Temperatures – Antelope Valley, San Bernardino in MDAB and Coachella Valley in SSAB

Ozone Precursors		2005	2007	2010	2020	2030
ROG (VOC)	Budget	26.5	23.20	23.20	23.20	23.20
	Draft 2004 RTP	23.5	20.65	16.78	9.95	8.13
NOX	Budget	68.3	63.2	63.2	63.2	63.2
	Draft 2004 RTP	64.9	59.6	51.1	24.2	17.7

Regional emissions generated using EMFAC 2002. To pass, RTP emissions must be equal or less than budget. (2005 – attainment year)

Table 3.4-15: Mojave Desert Air Basin (MDAB)
Particulate Matter (PM10) Emissions Analysis (tons/day)
Annual Average Temperatures
MDAB San Bernardino County (excluding Searles Valley)

Particulate Matter (PM10)	2005	2010	2020	2030
No Project	7.887	9.074	11.027	13.217
Draft 2004 RTP	7.858	8.76	10.994	13.181

Regional emissions generated using EMFAC 2002. To pass, build emission must be less than no-build. (2000 – attainment year)

Mojave Desert Air Basin (MDAB) – Searles Valley: The Searles Valley planning area is designated as the PM10 federal non-attainment area. There are no proposed projects or programs in the 2004 RTP. There is no difference between the 2004 RTP and No Project scenarios.

Table 3.4-16: Salton Sea Air Basin (SSAB) – Coachella Valley PM10 (tons/day) Summer Temperatures – Antelope Valley, San Bernardino in MDAB and Coachella Valley in SSAB						
Ozone Precursors		**2003**	**2006**	**2010**	**2020**	**2030**
PM10	Budget	12.3	10.90	10.90	10.90	10.90
	Draft 2004 RTP	9.433	9.096	9.238	9.524	9.795
Regional emissions generated using EMFAC 2002. To pass, RTP emissions must be equal or less than budget. (2005 – attainment year)						

Table 3.4-17: Salton Sea Air Basin – Imperial County Ozone (tons/day) Summer Temperatures - SCCAB-Ventura County					
Ozone Precursors		**2005**	**2010**	**2020**	**2030**
ROG (VOC)	No Project	8.850	7.23	5.63	5.72
	Draft 2004 RTP	8.845	7.22	5.61	5.69
NOX	No Project	12.725	11.80	8.881	7.810
	Draft 2004 RTP	12.720	11.79	8.880	7.790
Regional emissions generated using EMFAC 2002. To pass, RTP emissions must be equal or less than budget. (2005 – attainment year)					

Table 3.4-18: Salton Sea Air Basin – Imperial County Particulate Matter (PM10) Emissions Analysis (tons/day) Annual Average Temperatures				
Particulate Matter (PM10)	**2005**	**2010**	**2020**	**2030**
No Project	5.731	6.571	8.800	11.289
Draft 2004 RTP	5.728	6.566	8.292	10.647
Regional emissions generated using EMFAC 2002. To pass, build emission must be less than no-build. (2000 – attainment year)				

Regional Emissions Test

- The 2004 RTP regional emissions for all applicable criteria pollutants are consistent with their respective emissions budgets for all milestone, attainment, and planning horizon years for all nonattainment areas in the SCAG region.

- The 2004 RTP regional emissions are less than the No Project emissions for the all areas which require the build/no-build test.

Timely Implementation of TCM Test

The TCM project categories listed in the 2003 South Coast SIP/AQMP are given funding priority and are on schedule for implementation. The TCM strategies listed in the 2003 ozone SIP/AQMP (limited SIP Update) for the Ventura County portion of the SCCAB are given funding priority and are on schedule for implementation.

Financial Constraint Test

The projects and programs listed in the 2004 RTP are financially constrained in conformance with federal requirements. The 2004 RTP Appendices contains detailed information on the financial analysis conducted for the conformity analysis.

Interagency Consultation and Public Involvement

This Draft Program EIR and associated outreach efforts conducted for the 2004 RTP satisfy the interagency consultation and public involvement requirements of the conformity analysis.

Mitigation Measures

The impact is **less than significant** and therefore mitigation measures are not required.

Significance After Mitigation

Not applicable.

Airport Air Emissions

Impact 3.4-6: Increased air traffic would increase emissions from aircraft and ground support equipment (GSE).

Criteria Emissions

Under the Preferred Aviation Plan in the 2004 RTP the future demand for air travel will be largely served by using available capacity at air fields located in the Inland Empire and north Los Angeles County. A decentralized system relieves pressure on constrained, urbanized airports and on the region's surface transportation infrastructure.

The primary pollutants emitted by jet aircraft engines are ROG, NOX, CO, PM10 and SO2. The amount of these pollutants emitted from an aircraft depends on the engine type and the aircraft operational mode. Operational modes consist of the following aircraft activities: approach, taxi-in, taxi-out, takeoff, and climbout.

Emissions from aircraft vary during each of the operational modes because engine performance is only optimal at a cruise power setting. For example, when aircraft are idling or taxiing, emissions of CO and VOC are highest. During takeoff and climbout, emissions of these substances decrease and NOX emissions predominate. Total aircraft-related emissions are also a function of an airport's airfield layout and the capacity of the airport to handle a given volume of aircraft in any given time period.

To evaluate the effects of both the Preferred and Constrained Aviation Plans on air quality, emission inventories of VOC, NOX, CO, SOX, and PM were prepared using the EPA approved Emission and Dispersion Modeling System (EDMS) Version 4.11. The EDMS is a computer model specifically developed by the FAA to assess aircraft activity at airports. Unlike the EMFAC emissions factors, EDMS emissions factors do not decrease in future years, since aircraft fuel emissions, operations, and engine technologies are expected to remain relatively constant. The EDMS database contains aircraft-specific data of operating times for the approach, takeoff, and climbout aircraft modes. For the aircraft modes of taxi-in/taxi-out and delay, data is developed on

an airport-specific basis. Climbout emissions are included in the model up to an elevation of 3,000 feet.

For the aviation air quality analysis, estimates of taxi-in/taxi-out times were derived from airport layout plans (ALPs) for the following facilities:

- Los Angeles International Airport
- Ontario International Airport
- John Wayne Airport
- Bob Hope Airport
- Long Beach Airport
- Palm Springs International Airport
- Palmdale Regional Airport
- San Bernardino International Airport
- Southern California Logistics Airport
- March Air Reserve Base

Taxi times were based on estimates of average daily runway use for the aircraft categories of air carrier, commuter, general aviation, and military and distances from each runway to a central ramp area. The model inputs include numbers of air passengers and projected flight schedules. The Preferred and Constrained Aviation Plans under the 2004 RTP were modeled with EDMS.

Estimates of aircraft delay were derived using the FAA's Advisory Circular (AC) 150-5060-5 (Airport Capacity and Delay) methodology. The delay methodology of the AC uses theoretical airfield capacities based on an airport's runway configuration and aircraft fleet mix to identify an annual service volume (capacity). As an example, for air carrier airports, the AC identifies that an average delay of 3.5 minutes per landing-takeoff (LTO) cycle occurs if the annual aircraft demand equals the airport's theoretical annual service volume. If the annual demand at the airport is less than the service volume, the average delay is less, if the demand is more, the delay is more.

The equipment used to service aircraft are collectively referred to as ground support equipment (GSE) and include the following:

- Aircraft Tugs - tow aircraft into and out of the terminal gate area. This equipment is also used to tow aircraft to and from hangers for maintenance. Generally, there are two types of tugs--those used for narrow body aircraft (i.e., B727, B737) and those used for wide body aircraft (i.e., B747, B767).

- Belt Loaders - mobile conveyor belts used to move baggage to and from an aircraft baggage compartment.
- Service Vehicles - designed specifically to service aircraft between flights and include cabin service, food, fuel, and lavatory trucks.
- Baggage Tugs - move baggage to and from the terminal area to the aircraft.
- Airstart Units - provide volumes of air to an aircraft's main engines for starting.

Small aircraft (such as air taxi aircraft) do not typically require the use of most service equipment. For other types of aircraft, FAA's EDMS assigns "default" aircraft ground service equipment and default "times-in-mode" for each piece of equipment for each aircraft in the fleet mix.

The analysis of existing conditions was based on actual 1999 operations and aircraft fleet mix for each of the airport facilities under evaluation. The analysis of future (2030) conditions was based on the projected number of operations and the forecast aircraft fleet mix developed in support of the aircraft noise analysis.

Emission inventories of VOC, NOX, CO, SOX and PM10 for each of the airports and for each of the scenarios under consideration are included in the Aviation Appendix. Table 3.4-19 summarizes the results of the model. The emissions listed would occur almost entirely within the South Coast Air Basin.

Table 3.4-19: Emission Inventory – Aircraft/Ground Support Equipment
In tons per year (tpy)

Pollutant	1999 Base Year	2030 Constrained Plan	2030 Preferred Plan
ROG	1,942	2,883	2,691
NOX	8,195	14,305	15,695
CO	27,042	40,223	45,519
SOX	534	958	1,065
PM10	53	121	140

Source: Southern California Association of Governments; FAA Emission and Dispersion Model (EDMS) Version 4.11

By the year 2030 under the 2004 RTP, Preferred Aviation Plan, emissions of VOC, NOX, CO, SOX, and PM10 from aircraft and GSE are expected to increase in response to additional aircraft operations when compared to both existing (1999) levels and 2030 Constrained.

Toxic Air Contaminants

Since ROG emissions from mobile sources generally capture the majority of the volatile organic TAC contribution from aircraft and GSE, ROG emissions are a good indicator of the volatile organic portion of TACs from aviation sources. As shown in Table 3.4-19 and discussed previously, ROG emissions are expected to increase as result of the Preferred Plan and therefore, the impact of volatile organic toxics is considered to be significant.

Mitigation Measures

Management of operations at the regional airports is not within the scope of SCAG's authority. No mitigation measures proposed by SCAG would effectively minimize aircraft emissions. Nonetheless, SCAG shall support efforts to minimize emissions at airports. ARB has proposed concepts that the federal government should consider to achieve emission reductions such as more stringent engine standards, retrofit controls, cleaner fuel and applying standards to non-tactical military aircraft.

Additional environmental evaluation under CEQA will be required for airport expansion projects as well as long-range airport planning efforts at the local level. These evaluations will identify mitigation measures to reduce impacts of airport emissions on local air quality.

Significance After Mitigation

After implementation of all feasible mitigation measures as described above, activities related to aviation sources in the 2004 RTP (Preferred Aviation Plan) would most likely exceed current conditions for regional ROG, NOX, CO, SOX and PM10. Therefore aviation related emissions from the 2004 RTP would have a **significant** and unavoidable impact on regional air quality.

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3.5 NOISE

INTRODUCTION

This section describes noise and noise sources in the SCAG region, identifies potential noise impacts of the RTP, includes mitigation measures for the impacts, and evaluates the residual impacts.

ENVIRONMENTAL SETTING

The environmental setting describes noise and noise sources associated with the RTP. It also describes the regulatory setting that governs noise.

Noise Descriptors

Sound waves, traveling outward from a source, exert a sound pressure level (commonly called "sound level"), measured in decibels (dB). "Noise" is often defined as unwanted sound, and environmental noise is usually measured in "A-weighted" decibels, which is a decibel corrected for the variation in frequency response of the typical human ear at commonly-encountered noise levels. All noise levels discussed herein reflect A-weighted decibels. In general, people can perceive a two- to three-dB difference in noise levels; a difference of 10 dB is perceived as a doubling of loudness.

Environmental noise levels typically fluctuate across time of day; different types of noise descriptors are used to account for this variability, and different types of descriptors have been developed to differentiate between cumulative noise over a given period and single noise events. Cumulative noise descriptors include the energy-equivalent noise level (L_{eq}), Day-Night Average Noise Level (DNL), and Community Noise Equivalent Level (CNEL). The L_{eq} is the actual time-averaged, equivalent steady-state sound level, which, in a stated period, contains the same acoustic energy as the time-varying sound level during the same period. DNL and CNEL values result from the averaging of L_{eq} values (based on A-weighted decibels) over a 24-hour period, with weighting factors applied to different periods of the day and night to account for their perceived relative annoyance. For DNL, noise that occurs during the nighttime period (10:00 p.m. to 7:00 a.m.) is "penalized" by 10 dB. CNEL is similar to DNL, except that it also includes a "penalty" of approximately 5 dB for noise that occurs during the evening period (7:00 p.m. to 10:00 p.m.). Cumulative noise descriptors, DNL and CNEL, are well correlated with public annoyance due to transportation noise sources. Table 3.5-1 shows the compatibility between various land uses and CNEL.

Individual noise events, such as train passbys or aircraft overflights, are further described using single-event and cumulative noise descriptors. For single events, the maximum measured noise level (L_{max}) is often cited, as is the Sound Exposure Level (SEL). The SEL is the energy-based sum of a noise event of given duration that has been “squeezed” into a reference duration of one second, and is typically a value 5 to 10 dB higher than the L_{max}.

Table 3.5-1: Noise Land Use Compatibility Matrix

Land Use	Annual Community Noise Equivalent Level (CNEL) in decibels				
	55	60	65	70	75
Outdoor Amphitheatres					
Nature preserves, wildlife preserves, livestock farming; neighborhood and playgrounds					
Schools, preschools, libraries		45			
Residential- single family and multiple family, mobile homes, residential hotels, retirement homes, intermediate care facilities, hospitals, nursing homes		45			
Hotels and motels, other transient lodging; auditoriums, concert halls, indoor arenas, churches		45	45		
Office buildings- business, educational, professional and personal services; R&D offices and laboratories			50		
Riding stables, water recreation facilities, regional parks and athletic fields, cemeteries; outdoor spectator sports, golf courses					
Commercial- retail; shopping centers, restaurants, movie theatres			50	50	
Commercial- wholesale; industrial; manufacturing					
Agriculture (except residences and livestock), extractive industry, fishing, utilities, and public R-O-W					

Compatible: The outdoor community noise equivalent level is sufficiently attenuated by conventional construction that the indoor noise level is acceptable, and both indoor and outdoor activities associated with the land use may be carried out.

45 **Conditionally Compatible:** The outdoor community noise equivalent level will be attenuated to the indoor level shown, and the outdoor noise level is acceptable for associated outdoor activities.

Incompatible: The community noise equivalent level is severe. Although extensive mitigation techniques could make the indoor environment acceptable for performance of activities the outdoor environment would be intolerable for outdoor activities associated with the land use.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others due to the amount of noise exposure (in terms of both exposure time and “insulation” from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, natural areas, parks and outdoor recreation areas are generally more sensitive to noise than are commercial and industrial land uses. Consequently, the noise standards for sensitive land uses are more stringent than those for less sensitive uses, such as commercial and industrial.

To protect various human activities and sensitive land uses (e.g., residences, schools, and hospitals) lower noise levels are needed. A noise level of DNL 55 to 60 dB outdoors 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 DNL 55 dB[1]. Sporadic complaints associated with the DNL 55 to 60 dB range give way to widespread complaints and individual threats of legal action within the DNL 60 to 70 dB range. At DNL 70 dB and above, residential community reaction typically involves threats of legal action and strong appeals to local officials to stop the noise.

Noise Sources

Some typical principal noise generators within the SCAG region are associated with transportation (i.e., airports, freeways, arterial roadways, seaports, and railroads). Additional noise generators include stationary sources, such as industrial manufacturing plants and construction sites. Local collector streets are not considered to be a significant source of noise since traffic volume and speed are generally much lower than for freeways and arterial roadways. Generally, transportation-related noise sources characterize the ambient noise environment of an area.

Freeways and Arterial Roadways

The 2004 RTP contains a detailed inventory of the current freeway system, currently comprising over 1,000 centerline miles of interconnected freeways throughout the six-county SCAG region. The magnitude of noise generated by a given roadway depends upon the overall traffic volume, the percentage of trucks (particularly "heavy trucks"), and average vehicle speed. Table 3.5-2 provides noise level measurements (in DNL at 200 feet from the roadway) for a sampling of road segments that generate some of the highest traffic noise levels in the SCAG region based on data on daily traffic volumes.

The extent to which traffic noise levels along these roads affect sensitive land uses depends upon a number of factors. These include whether the roadway itself is elevated above grade or

[1] United States Environmental Protection Agency. July 1981. *Noise effects handbook* (pp.8-2). Washington, DC: Author.

Table 3.5-2: Noise Levels Along Selected Freeways and Arterials in the SCAG Region

County	Freeway	Noise Monitoring Location	Annual Average Daily Traffic*	Noise Level at 200 feet (Lav)	Maximum Noise Level at 200 feet (Lmax)
Los Angeles	Interstate 5	12775 Encinitas Avenue, Sylmar	201,000	67.2	74.4
	Interstate 605	Pioneer Ave. & Strong Ave., Whittier	210,000	71.8	83.4
	Interstate 10	Walavista Road, Los Angeles	262,000	62.8	65.5
	Interstate 10	Dalewood Street, Baldwin Park	262,000	72	76.6
	Interstate 101	Oakdale Ave., Woodland Hills	233,000	63.2	71
	State Route 60	Garo Street & Pontenova Ave., Hacienda Heights	218,000	66.9	82.1
Orange	Interstate 405	Claremont St., Irvine	249,000	64.7	65.9
	Interstate 5	2441 Michelle Drive, Tustin	197,000	61.8	66.1
	State Route 57	8507 Whitewater Dr., Anaheim	198,000	69.1	77
	State Route 91	Tafolla St., & Kansas Ave., Placentia	214,000	65.6	71.2
San Bernardino	Interstate 10	Meadows Lane & Old Ranch Road, Colton	183,000	56.3	61.5
	Interstate 10	Rosewood & Spade, Loma Linda	183,000	64.4	76.2
	Interstate 10	10170 Cypress Ave., Fontana	183,000	61.9	78.1
Ventura	State Route 118	2315 Kuehner, Simi Valley	93,000	66.3	73.2
	U.S. Route 101	Willow & Skyline Dr., Thousand Oaks	124,000	66.3	73.2
Riverside	State Route 91	200 S. Washburn Ave., Corona	186,000	62.7	67.9
	Interstate 60	University Ave., Riverside	109,000	63.3	76.3
	Interstate 10	632 Wellwood Ave., Beaumont	59,000	66.2	71.9

All noise measurements were taken for a 15-minute interval during peak hours from 4 p.m. to 6 p.m.

*Annual average daily traffic volumes represent average values for each given segment based on data contained in California Department of Transportation's 1998 Traffic Volumes on California State Highways (June 1999).

Source: Southern California Association of Governments. (2001, February 1). *2004 RTP EIR*

depressed below grade, whether there are intervening structures or terrain between the roadway and the sensitive uses, and the distance between the roadway and such uses. 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.[2] 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.[3]

Additionally, the region has an enormous number of arterial roadways. Typical arterial roadways have one or two lanes of traffic in each direction, with some containing as many as four lanes in each direction. Noise from these sources can be a significant environmental concern where buffers (e.g., buildings, landscaping, etc.) are inadequate or where the distance from centerline to sensitive uses is relatively small. Given typical daily traffic volumes of 10,000 to 40,000 vehicle trips, noise levels along arterial roadways typically range from DNL 65 to 70 dB at a distance of 50 feet from the roadway centerlines.

Airports

The SCAG region's aviation system is one of the world's largest and most complex aviation systems. The region is composed of 57 public-use airports, including eight commercial service airports, 42 general aviation, 11 existing or recently closed military air bases, two limited commercial service airports and two joint-use facilities. In addition, there are other private-owned, private-use airports within the region which are not counted. Six of the commercial service airports handle the majority of passenger air traffic: Bob Hope Airport, John Wayne/Orange County, Long Beach, Los Angeles International, Ontario International and Palm Springs. Limited commercial service exists at Oxnard and Imperial County airports.

Railroad Operations

Railroad operations generate high, relatively brief, intermittent noise events. These noise events are an environmental concern for sensitive uses located along rail lines and in the vicinities of switching yards. Locomotive engines and the interaction of steel wheels and rails primarily generate rail noise. The latter source creates three types of noise: 1) rolling noise due to continuous rolling contact, 2) impact noise when a wheel encounters a rail joint, turnout or crossover, and 3) squeal generated by friction on tight curves. For very high speed rail vehicles, air turbulence can be a significant source of noise as well.[4] In addition, use of air horns and crossing bell gates contribute to noise levels in the vicinity of grade crossings. Table 3.5-3

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[2] Beranek, L. L. 1988. *Noise and vibration control* (pp. 182). New York: McGraw-Hill.

[3] *Ibid.*

[4] Wyle Laboratories. July 1973. *Assessment of noise environments around railroad operations* (Research Report No. WCR 73-5 El Segundo, CA: Author.

Table 3.5-3: Reference Noise Levels for Various Rail Operations			
Source / Type		**Reference Conditions**	**Reference Noise Level (SEL)***
Commuter Rail, At-Grade	Locomotives	Diesel-Electric, 3,000 horsepower, throttle 5	92
		Electric	90
	Cars	Ballast, welded rail	82
Rail Transit		At-grade, ballast, welded rail	82
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

Notes: * Measured at 50 feet from track centerline with trains operating at 50 miles per hour. For the sake of comparison, an automobile passby event generates approximately SEL 73 dB, and a city bus generates approximately SEL 84 dB. SEL = Sound Exposure Level

Source: United States Department of Transportation, Federal Aviation Administration. (1995, April). *Transit noise and vibration impact assessment*. Washington, DC: Author.

provides reference noise levels in terms of Sound Exposure Levels (SEL) for different types of rail operations.

Freight Trains

Noise levels generated by freight train passby events reflect locomotive engine noise and rail car wheel rail interaction. The former depends upon track grade conditions (i.e., uphill versus downhill) and is largely independent of speed whereas the latter is highly speed dependent, increasing approximately 6 dB for each doubling of train velocity.[5] In addition to noise, freight trains also generate substantial amounts of ground-borne noise and vibration in the vicinity of the tracks. Ground-borne noise and vibration is a function of both the quality of the track and the operating speed of the vehicles.

The SCAG region has an extensive network of railroad lines belonging primarily to two major "Class I" railroads: Union Pacific Railroad (Union Pacific) and Burlington Northern Santa Fe Railway (BNSF).[6] A rail line supporting 40 freight trains per day generates approximately DNL 75 dB at 200 feet from the tracks. 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. BNSF generates approximately DNL 75 dB at a distance of

[5] "Class I" railroads have annual gross revenues of $250 million or more.

[6] Two of the major railroads that historically have been associated with California, the Southern Pacific Railroad and the Atchison, Topeka and Santa Fe Railway, have merged into other railroad companies. In 1995, the Atchison Topeka, and Santa Fe Railway merged with Burlington Northern to become Burlington Northern Santa Fe Railway. In the following year, the Southern Pacific Railroad merged with Union Pacific Railroad with the merged company retaining the Union Pacific name.

200 feet from the tracks. The Ventura County Railroad, owned by Rail America, Inc., serves the Port of Hueneme and connects with the Union Pacific in Oxnard.

Commuter and Inter-city Passenger Trains

This category includes passenger trains powered by either diesel or electric locomotives. In general, the noise generated by commuter rail facilities is from the locomotives themselves. In the SCAG region, there are two commuter and inter-city passenger train operators: AMTRAK and the Southern California Regional Rail Authority. AMTRAK operates trains with destinations in Seattle, Chicago, Orlando, San Diego, and San Luis Obispo. A typical AMTRAK passby event generates SEL 107 dB at 50 feet[7]; two such events during the daytime or evening periods generate approximately DNL 61 dB at 50 feet and approximately DNL 52 dB at 200 feet. Nine such events generate approximately DNL 67 dB at 50 feet and 58 DNL dB at 200 feet.

The Southern California Regional Rail Authority operates the Metrolink commuter rail system. This system currently includes seven rail lines, with destinations in Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties. Noise levels generated by Metrolink are similar to those associated with AMTRAK.

Steel Wheel Urban Rail Transit

This category includes both heavy and light rail transit. Heavy rail is generally defined as electrified rapid transit trains with dedicated guideway, and light rail as electrified transit trains that do not require dedicated guideway. 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. 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 Transit Authority (MTA) provides urban rail transit service on four lines within Los Angeles County. The Blue Line extends from Long Beach to the 7th Street Metro Center in downtown Los Angeles. The Red Line connects Union Station with North Hollywood via the Metro Center, the Gold Line connects Union Station with Pasadena, and the Green Line extends from Redondo Beach to Norwalk. As shown in Table 3.5-3, individual urban rail transit passby 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 number of events.

Port Operations

The Ports of Long Beach, Los Angeles and Hueneme are major regional economic development centers. Noise is generated from four sources: ships using the port facilities, equipment associated with cargo activity within the port, and truck and rail traffic moving cargo to and from the ports. All sources affect the ambient noise levels in the port areas. Residential areas in San

7 County of Ventura. May 1988. *Ventura county general plan, hazards appendix*. Ventura, CA: Author.

Pedro (City of Los Angeles) and West Long Beach are affected most by truck and rail traffic related to the ports.

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. The Alameda Corridor consolidates the operations of Union Pacific 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 Union Pacific and BSNF switching yards in eastern Los Angeles. The project includes four overpasses and three underpasses at intersections south of State Route 91 that allow vehicles to pass above the trains. North of State Route 91, trains pass through a 10-mile, 33-foot-deep trench. 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. Also, the project includes sound walls in certain locations to mitigate vehicle noise along Alameda Street in residential neighborhoods and other sensitive areas.

Industrial, Manufacturing, and Construction-Related Noise Sources

Noise from industrial complexes, manufacturing plants and construction sites are characterized as stationary, or point, sources of noise even though they may include mobile sources, such as forklifts and graders. Local governments typically regulate noise from industrial, manufacturing, and construction equipment and activities through enforcement of noise ordinance standards, implementation of general plan policies, and imposition of conditions of approval for building or grading permits.

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. In contrast to industrial and manufacturing plants, construction sites are located throughout the region and are often located within, or adjacent to, residential districts. 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. 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).[8]

Construction-related noise levels generally fluctuate depending on the construction phase, equipment type and duration of use, distance between noise source and receptor, and presence or absence of barriers between noise source and receptor. Table 3.5-4 shows typical noise levels

[8] *Ibid.*

Table 3.5-4: Demolition and Construction Equipment Source Noise Levels		
Equipment Type	**Typical Equipment dB Level**	**Quieted Equipment dB Level***
Air Compressor	81	71
Backhoe	85	80
Concrete Pump	82	80
Concrete Vibrator	76	70
Concrete Breaker	82	75
Truck Crane	88	80
Dozer	87	83
Generator	78	71
Loader	84	80
Paver	88	80
Pneumatic Tools	85	75
Water Pump	76	71
Power Hand Saw	78	70
Shovel	82	80
Trucks	88	83
Pile Drivers	90	80

Notes: Noise levels for typical and quieted equipment at 50 feet from source. *Quieted equipment can be designed with enclosures, mufflers, or noise-reducing features.

Source: United States Environmental Protection Agency. (1971). *Noise from construction equipment and operations, building equipment and home appliances*. Washington, DC: U.S. Government Printing Office.

associated with various types of construction-related machinery. These noise levels, which correspond to a distance of 50 feet, decrease by approximately six dB with each doubling of distance from the construction site (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 facades.[9]

REGULATORY SETTING

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 government sets noise standards for those transportation noise sources that are not preempted from regulation, such as automobiles, light trucks, and motorcycles. Noise sources

[9] Cornett, C.L. and Hina, C.E. 1979. *Methods for predicting noise and vibration impacts*. Washington, DC: United States Department of Transportation, Transportation Systems Center.

associated with industrial, commercial, and construction activities are generally subject to local control through noise ordinances and general plan policies.

Federal Agencies and Regulations

Federal regulations for railroad noise are contained in 40 CFR, Part 201 and 49 CFR, Part 210. The regulations set noise limits for locomotives and are implemented through regulatory controls on locomotive manufacturers.

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 passby noise standard is 80 dB at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers. The U.S. Department of Transportation's Federal Highway Administration's regulations[10] 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." Under the regulations, a "substantial increase" is defined as an increase in L_{eq} of 12 dB during the peak hour of traffic noise. For sensitive uses, such as residences, schools, churches, parks, and playgrounds, the Noise Abatement Criteria for interior and exterior spaces is L_{eq} 57 and 66 dB, respectively, during the peak hour of traffic noise.

Aircraft operated in the U.S. are subject to certain federal requirements regarding noise emissions levels. These requirements are set forth in Title 14 of the *Code of Federal Regulations* (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 Federal Aviation Administration established a schedule for complete transition to Part 36 "Stage 3"[11] 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.

Although the National Environmental Policy Act (NEPA) does not establish specific noise standards, the noise impacts of projects are routinely considered as one of the potential environmental consequences of federal actions subject to NEPA.

State Agencies and Regulations

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 Title 21 of the *California Code of Regulations*, identify a noise exposure level

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[10] 23 Code of Federal Regulations (CFR) 772.

[11] Stage 3 aircraft incorporate more recent jet engine noise suppression technology; Stage 2 aircraft are intermediate between Stage 3 and Stage 1, which is made up of older technology turbojet aircraft.

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.

The State of California establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State passby standard is consistent with the federal limit of 80 dB. The State passby 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.[12] For new roadway projects, the California Department of Transportation employs the Noise Abatement Criteria, discussed above in connection with the Federal Highway Administration.

The California Noise Insulation Standards found in the *California Code of Regulations*, Title 24, set requirements 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.

Local Agencies and Regulations

To identify, appraise, and remedy noise problems in the local community, each county and city in the SCAG region has adopted 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

[12] California Vehicle Code Sections 23130 and 23130.5; 27150 et.seq.; 27204 and 27206.

noise ordinances and noise elements of the Los Angeles, Long Beach and Port Hueneme General Plans.

In terms of airport noise, some of the actions that airport proprietors have been allowed to take to address local community noise concerns include runway use and flight routing changes, aircraft operational procedure changes, and engine run-up restrictions. These actions generally are subject to approval by the Federal Aviation Administration, 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 proprietors may also consider limitations on airport use, but such restrictions can be overridden by the Federal Aviation Administration 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.

METHODOLOGY

This section summarized the methodology used to evaluate the expected noise impacts from implementing the 2004 RTP.

Comparison with the No Project

The analysis of noise impacts includes a comparison between the expected future conditions with the proposed Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the effects of the 2004 RTP.

Determination of Significance

Noise associated with highway traffic is dependent on a number of variables including:

- traffic volume,
- motor vehicle speed,
- motor vehicle fleet mix (cars, trucks, etc.), and
- location of the roadway with respect to sensitive receptors.

Noise from highway traffic is generally measured in terms of one-hour equivalent steady-state sound levels that contain the same acoustic energy as a time-varying sound level (L_{eq1h}). Following Federal Highway Administration (FHWA) guidance, noise impacts occur when predicted noise levels increase substantially when compared to existing levels, or when noise levels approach or exceed the FHWA's noise abatement criteria (NAC).

To evaluate the alternatives, the existing condition (2000) was compared with the future 2030 alternatives. The comparison was accomplished using a Geographic Information System (GIS)

analysis program. The network traffic results for the existing condition and for the plan were incorporated into an ArcView GIS project and roadways where it is anticipated that noise levels will increase 3 dBA or more above existing levels were identified.

The evaluation also considered the potential for absolute noise impacts. Following guidance published by Caltrans, a noise impact is determined to occur if predicted noise levels approach the NAC by 1 dBA (66 dBA).

To eliminate facilities from the evaluation where there would not be the potential for 66 dBA to occur, the following were identified and eliminated from consideration:

- Arterials where, at a distance of 100 from the edge of pavement, the FHWA's Traffic Noise Model (TNM) indicated that the motor vehicle volume (and the medium/heavy truck percentage) resulted in traffic noise levels less than 66 dBA.
- Arterials where the calculated motor vehicle speed was less than 17 miles per hour.
- Interstates where the calculated motor vehicle speed was less than 30 miles per hour.

Roadways anticipated to have an increase of 3 dBA from existing conditions are roadways where:

- the total traffic volume increases 100 percent from existing conditions,
- the truck (medium and heavy) volume increases by 130 percent from existing conditions, or
- the truck (medium and heavy) volume increases by 100 percent with an increase in other vehicles of 50 percent.

Since noise is a highly localized impact, specific and detailed analyses are most appropriate at the project level. Therefore the method used to assess noise impacts of the 2004 RTP is to review the list of proposed transportation improvements and assess the likelihood of potentially significant noise impacts based on the type of project, location and general land uses.

SIGNIFICANCE CRITERIA

A significant impact is defined as "a substantial or potentially substantial, adverse change in the environment" (CEQA § 21068). The proposed Plan would have a significant noise impact if implementation would potentially result in:

- Noise levels, groundborne noise levels and excessive groundborne vibration that increase substantially and temporarily adjacent to transportation facility construction.
- Noise levels, groundborne noise levels and excessive groundborne vibration that increase substantially and permanently adjacent to transportation facilities.
- Noise levels that increase substantially and permanently adjacent to sensitive receptors.

- A cumulatively considerable increase in regional ambient noise levels.

IMPACTS AND MITIGATION MEASURES

Impact 3.5-1: Grading and construction activities associated with the proposed freeway, arterial, transit and Maglev projects identified in the 2004 RTP would intermittently and temporarily generate noise levels above ambient background levels. Noise levels in the immediate vicinity of the construction sites would increase substantially sometimes for extended duration. This would be considered a significant impact in some cases.

The freeway and arterial projects proposed in the 2004 RTP include the widening of existing freeways and the construction of new interchanges. A few projects would involve constructing new freeway segments, including auxiliary capacity enhancement facilities and mixed flow connectors. However, many projects proposed in the 2004 RTP would not involve construction activities.

Construction activities associated with the proposed Plan would result in temporary noise increases at nearby sensitive receptors. Table 3.5-5 presents the different types of freeway, transit and goods movement projects which typically emit noise during construction. The table also shows the duration of construction noise created by project type. Impacts to sensitive receptors resulting from these proposed projects would depend on several factors such as the type of project proposed for the given area, land use of the given area, and duration of proposed construction activities. Additionally, construction noise levels would fluctuate depending on construction phase, equipment type, and duration of use; distance between noise source and receptor; and presence or absence of barriers between noise source and receptor.

In general, sensitive receptors could be significantly affected by projects involving the construction of new systems (new facilities, capacity enhancement facilities, rail corridors, interchanges, underground rail lines). Specifically, sensitive receptors located in the vicinity of these projects could be significantly impacted by construction of the proposed projects. Additionally, modification projects would result in short-term construction impacts to sensitive receptors. See Section 3.1, Land Use, for further discussion.

Short-term significant impacts would occur during the construction stage of individual projects. This would be considered a **significant impact.**

Maglev System

Construction-related noise and vibration impacts of the proposed Maglev System are discussed in Maglev Environmental Assessment (EA) report prepared by Parsons Transportation Group Inc., in February, 2000.

Table 3.5-5: Types and Duration of Noise Produced by Proposed Projects						
Project Type	**Noise Levels**			**Duration**		
	High	**Medium**	**Low**	**Extended**	**Medium**	**Short**
Freeways and Arterials						
Arterials/Interchanges	X			X		
Expressway	X			X		
Freeway – mixed flow	X			X		
HOV connector	X			X		
Reconfigure ramp	X			X		
Replace overcrossing	X			X		
Capacity enhancement facilities	X			X		
Widen underpass 4-6 lanes	X			X		
Auxiliary lanes		X			X	
Climbing lanes		X			X	
HOT lanes		X			X	
Interchange addition		X			X	
Bikeways		X				X
Capacity enhanced arterial		X				X
Interchange improvement		X			X	
Park & ride		X				X
Roadway operations & maintenance			X			X
Smart Street improvements			X			X
Transit						
Commuter rail	X			X		
High Speed Rail	X			X		
Inter-city rail	X			X		
Transit center		X			X	
Grade crossing			X			X
Intelligent Transportation System			X			X
Light rail	X			X		
Rail improvement	X			X		
Rail tunnel improvement	X			X		
Goods Movement						
Port rail access improvements	X			X		

Note: Project specific impacts depend on location and location of sensitive receptors. This table provides a general assessment of noise-generated by different types of impacts irrespective of the relationship to sensitive receptors.

Mitigation Measures

MM 3.5-1a: Project implementing agencies shall comply with all local sound control and noise level rules, regulations, and ordinances.

MM 3.5-1b: Project implementing agencies shall limit the hours of construction to between 6:00 a.m. and 8:00 p.m. on Monday through Friday and between 7:00 a.m. and 8:00 p.m. on weekends.

MM 3.5-1c: Equipment and trucks used for project construction shall utilize the best available noise control techniques (including mufflers, intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) in order to minimize construction noise impacts.

MM 3.5-1d: Impact equipment (e.g., jack hammers, pavement breakers, and rock drills) used for project construction will be hydraulically or electrically powered wherever possible, to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatically powered tools is unavoidable, an exhaust muffler on the compressed air exhaust would 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 where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures will be used such as the use of drilling rather than impact equipment, whenever feasible.

MM 3.5-1e: Project implementing agencies shall ensure that stationary noise sources will be located as far from sensitive receptors as possible. If they must be located near existing receptors, they will be adequately muffled.

MM 3.5-1f: The project implementing agencies shall designate a complaint coordinator responsible for responding to noise complaints received during the construction phase. The name and phone number of the complaint coordinator will be conspicuously posted at construction areas and on all advanced notifications. This person will be responsible for taking steps required to resolve complaints, including periodic noise monitoring, if necessary.

MM 3.5-1g: Noise generated from any rock-crushing or screening operations performed within 3,000 feet of any occupied residence shall be mitigated by the project proponent by strategic placement of material stockpiles between the operation and the affected dwelling or by other means approved by the local jurisdiction.

MM 3.5-1h: Project implementing agencies shall direct contractors to implement appropriate additional noise mitigation measures including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, and installing acoustic barriers around stationary construction noise sources to comply with local noise control requirements.

MM 3.5-1i: Project implementing agencies shall implement use of portable barriers during construction of subsurface barriers, debris basins, and storm water drainage facilities.

MM 3.5-1j: In residential areas, pile driving will be limited to daytime working hours. No pile-driving or blasting operations shall be performed within 3,000 feet of an occupied residence on Sundays, legal holidays, or between the hours of 8:00 p.m. and 8:00 a.m. on other days. Any variance from this condition shall be obtained from the project proponent and must be approved by the local jurisdiction.

MM 3.5-1k: Wherever possible, sonic or vibratory pile drivers will be used instead of impact pile drivers (sonic pile drivers are only effective in some soils). If sonic or vibratory pile drivers are not feasible, acoustical enclosures will be provided as necessary to ensure that pile driving noise does not exceed speech interference criterion at the closest sensitive receptor.

MM 3.5-1l: Engine and pneumatic exhaust controls on pile drivers will be required as necessary to ensure that exhaust noise from pile driver engines is minimized to the extent feasible.

MM 3.5-1m: Where feasible, pile holes will be pre-drilled to reduce potential noise and vibration impacts.

Significance After Mitigation

The above mitigation measures would reduce noise impacts; however, construction noise would still be **significant in the short term**.

Impact 3.5-2: Noise-sensitive land uses could be exposed to noise in excess of normally acceptable noise levels or substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.). This is considered a potentially significant impact.

For this regional scale of analysis, the unmitigated noise impacts of new highways, highway widening, new HOV lanes, new transit corridors, and increased frequency along existing transit corridors are generally expected to exceed the significance criteria when sensitive noise receptors are in proximity. Table 3.5-6 lists projects with potential noise impacts from proposed new and expanded facilities—highway, freeway, rail transit, tollway, truck-climbing lanes, freeway interchanges, and Maglev projects. Arterials, TDMs, O&M, grade crossings, ramp and interchange improvements, county-wide bus route expansions, and transit facility improvements are not specifically considered here, as both operational and cumulative noise impacts are found to be potentially significant.

It should be noted that the list of projects identified in the following table are indicative of projects most likely to generate potentially significant noise impacts due to facility operation, but the list is neither exhaustive nor definitive. Each of the projects included in the 2004 RTP would need to be evaluated independently as part of its own environmental assessment and review process.

Freeways

Changes in the percentage of miles of noise affected freeways and arterials are a direct result of increases and decreases in the traffic volumes, changes in fleet mix, and speeds assigned to each roadway in each county and additional interstate facilities proposed with the “build” scenarios.

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
IM	SR-115	I-8	Evan Hewes Hwy	Construct 4 lane extension.
IM	SR-98	Sr-111	Dogwood/SR-98	Corridor improvements- widening or realignment.
IM	Dogwood Rd. Corridor/I-8	SR-98	I-8	Corridor improvements- widen to six lanes from McCabe to I-8. I-8 improvement to six lanes.
IM	SR-111	SR-98	I-8	Upgrade to 4-lane freeway with interchange(s) at several locations
LA	SR-14	Ave. P-8	Ave. L	Add 1 HOV lane each dir
LA	I-710	I-10	Huntington Dr	Construct 1 HOV lane each dir
LA	I-710	Huntington Dr	I-210	Construct 1 HOV lane each dir
LA	I-710	I-10	Huntington Dr	Construct 3 MF lanes each dir
LA	I-710	Huntington Dr	I-210	Construct 3 MF lanes each dir
LA	I-5/SR-170	North to South/South to North		HOV Connector
LA	I-5/I-405	North to South/South to North		HOV Connector
LA	I-5 Interchanges	Orange County Line	Rosemead Blvd	Interchange improvements
LA	SR-57/SR-60			Interchange improvement
LA	Metrolink Commuter Rail	Countywide		Service Expansion
LA	Green Line Extension	Mariposa@Nash to Century@Sepulveda (LAX Term.)		Light Rail
LA	Crenshaw Corridor			Transit Corridor (technology TBD)
LA	Gold Line Extension	Pasadena	Claremont	Light Rail
LA	Metro Center Connector	Blue Line/Exposition Line	Gold Line	Downtown Light Rail Connector
LA	Red Line Extension	Western Ave	Fairfax Ave	Subway
LA	US-101	SR-23	SR-134/SR-170	User-Fee-Backed Capacity Enhancement
OR	SR-91/SR-241			Add direct toll-to-toll or HOV connection from north/south SR-241 to SR-91 toll lanes to/from the east

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
OR	SR-91	SR-241	SR-71	Add toll lane and toll connection at SR-71 (RIV) (per Four Corners Study)
OR	I-5 NB/SB	Coast Highway	Pico	Add 1 HOV lane each direction
OR	I-405/I-605			HOV Connector
OR	SR-57 NB	Orangethorpe	Lambert	MF or Aux Capacity
OR	SR-57 NB	at SR-91		Add 4th through lane
OR	SR-91 EB/WB	SR-55	Riverside County Line	Add 1 MF lane each direction
OR	I-405	SR-73	Beach	Add 1 MF lane each direction
OR	I-5 SB	La Paz Road	Oso Parkway	Extend auxiliary lane through interchange
OR	I-5 SB	Alicia Parkway		Extend auxiliary lane through interchange
OR	SR-55	17th / 4th / I-5 area		Add southbound auxiliary lane from SR-22 to I-5 to address lane drop/merge issues
OR	SR-55 SB	Dyer	Mac Arthur	Auxiliary lane
OR	SR-57 NB	Katella on-ramp	Lincoln off-ramp	Auxiliary lane, full standard median
OR	SR-57 SB	Ball off ramp	Katella on ramp	Add auxiliary lane
OR	SR-91 WB	SR-71	SR-241	Add auxiliary lane

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
OR	SR-91 EB	SR-241	SR-71	Add auxiliary lane EB which drops at Green River, another extends to SR-71
OR	SR-91 WB	NB SR-55	WB SR-91 at Tustin	Add auxiliary lane
OR	SR-91 WB	SR-57	I-5 (WB Only)	Add auxiliary lane
OR	I-405 NB	SR-133	Sand Canyon	Widen NB I-405 SR-133 to Sand Canyon, add aux lane
OR	I-405 SB	Irvine Center Drive	Irvine Center Drive	Add 2nd auxiliary lane
OR	I-405 NB	Jeffrey	Culver	Add auxiliary lane
OR	I-405 NB	Sand Canyon	Culver	Tie auxiliary lanes together
OR	I-405 SB	Beach	I-605	Continuous auxiliary lane, operational improvements
OR	I-5 NB/SB	La Paz Road		Re-construct interchange to increase storage capacity of ramps
OR	Fixed Route Bus	Countywide		Countywide Fixed Route, Express, Rail Feeder, Rapid Bus. Expand local service to achieve 10-minute headways in the core of the county. Expand to 2.5 million annual vsh by 2030.
OR	Metrolink Commuter Rail	Orange Line/IEOC Line/91 Line		Expand service - Orange Line to 30 daily trains, IEOC to 21 daily trains, 91 line to 21 daily trains. Plan for midday intracounty service Laguna Niguel to Fullerton.
OR	Track La Mirada Basta	La Mirada		DT Junction to La Mirada Triple Track
OR	Metrolink Commuter Rail	Anaheim Stadium		Parking Structures and Platform Extensions - Metrolink Station
OR	SR-57 NB	Lambert	Tonner Canyon Road	Truck Climbing Lane
OR	Centerline Light Rail	Orange County	Orange County	Extension of the Orange County Centerline Light Rail
RV	CETAP - Hemet to Corona/Lake Elsinore	Hemet	Corona/Lake Elsinore	Ramona/Cajalco expressway (3 lanes each dir) from Sanderson Ave to I-15

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
RV	CETAP - Moreno Valley to San Bernardino County	Moreno Valley	San Bernardino County	Construct new intercounty transportation corridor
RV	CETAP - Riverside County to Orange County	Riverside County	Orange County	Construct new intercounty transportation corridor
RV	CETAP - Temecula Corridor	Winchester (SR-79/SR-74)	Temecula	On I-15, widen to 1 HOV & 6 MF each dir from I-215 to Winchester, 1 HOV & 5 MF each dir from Winchester to San Diego County Line; on I-215, widen to 1 HOV & 4 MF each dir from Newport Rd to I-15; improve I-15/I-215 interchange
RV	SR-60/I-215	SR60/I-215 E. Jct	East to SR-60 and South to I-215	HOV Connector
RV	I-15	San Diego County Line (R0.0)	SR-60 (51.5)	Add 1 HOV lane each direction (EA's 33790G, 33800G)
RV	SR-91/I-15	South to West/West to South		HOV Connector
RV	I-215	SR-60/SR-91/I-215 Jct	San Bernardino County Line	Add 1 MF and 1 HOV lane each direction (EA 467200)
RV	I-10	Monterey Ave (44.5)	Dillon Rd (58.9)	Add 1 MF lane each direction (EA 0A030K)
RV	I-10/SR-60			Construct new interchange
RV	I-215	Eucalyptus Ave (R37.4)	I-15 (R8.9)	Add 1 MF lane each direction (EA's 35380K, 35390K, 35370K)
RV	SR-71	SR-91	San Bernardino County Line	Widen to 3 MF lanes each direction
RV	SR-91	Pierce Street	Orange County Line	Add 1 MF lane each direction
RV	SR-91/SR-71			Improve interchange

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
RV	SR-79	Ramona Expwy	Domenigoni Parkway	Realign highway (construct 4 lanes)
RV	SR-79	Hunter	Ramona Expwy	Widen from 4 to 6 lanes (note: RTIP#46460 widens to 6 lanes from Hunter to Domenigoni)
RV	Metrolink Commuter Rail	Countywide		Metrolink Improvements (track, rolling stock)
RV	Metrolink Commuter Rail	IEOC & 91 Lines		Metrolink Rail Station Improvements
RV	Metrolink Commuter Rail			Metrolink Construct New Station At 3360 Van Buren Blvd In Riverside (Parking 550 Spaces)
RV	I-10	San Bernardino County Line (R0.0)	Banning City Limits (12.9)	Add eastbound truck climbing lane
RV	SR-60	Badlands area e/o Moreno Valley	Badlands area - w/o SR-60/I-10 Jct	Add eastbound truck climbing lane
SB	I-10	I-15	SR-38	Add 1 HOV lane each direction, widen UC's, reconstruct ramps
SB	I-10	SR-38	Yucaipa Bl	Add 1 HOV lane each direction
SB	I-10	Yucaipa Bl	Riverside County Line	Add 1 HOV lane each direction
SB	I-15	Riverside County Line	I-215	Add 1 HOV lane each direction
SB	I-15	I-215	US-395	Add 1 HOV lane each direction
SB	I-15	US-395	D St	Add 1 HOV lane each direction
SB	I-215	Riverside County Line	I-10	Add 1 HOV lane each direction
SB	I-215	SR-30	I-15	Add 1 HOV lane each direction
SB	I-10/I-215	South to East/East to South		HOV Connector
SB	I-10/I-15	South to West/West to South		HOV Connector
SB	I-10/I-15	North to West/West to North		HOV Connector

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
SB	I-215	Riverside County Line	I-10	Add 1 MF lane each direction
SB	I-215	I-10	SR-30	Add 1 MF lane each direction (restriping)
SB	I-215	SR-30	I-15	Add 1 MF lane each direction
SB	SR-210	I-215	I-10	Add 1 MF lane each direction and widen UC's
SB	SR-18	Los Angeles County Line	US 395	Widen from 1 to 2 lanes each dir
SB	SR-18	0.8 mi west of Orchard Dr (PM 79.9)	2.1 mi west of Orchard Dr (PM 81.2)	Construct Passing Lanes (PM 79.9/81.2) and Turn Lanes (PM 73.76/84.33)
SB	SR-38 (Orange/Lugonia)	Redlands City Limit (W)	Redlands City Limit (E)	Widen from 1 to 2 lanes each dir
SB	SR-62 (Twentynine Palms Hwy)	Fairway Dr	SR-247	Widen from 2 to 3 lanes each dir
SB	SR-62	At Colorado River (PM141.9/143.1)		Bride widening from 2 to 4 lanes
SB	SR-83 (Euclid)	Merril Av	Kimball Av	Widen from 2 to 4 lanes each dir
SB	SR-142 (Chino Hills Pkwy)	Carbon Canyon Rd	Pipeline Dr	Widen from 2 to 3 lanes each dir
SB	SR-247 (Old Woman Springs Rd)	North of SR-62	Griffith Rd	Widen from 1 to 2 lanes each dir
SB	San Bernardino-Redlands Extension	4th St/Vernon	Grove/Central	Extend rail service to Redlands (10 miles); rail technology TBD; 15-min. freq. daily
SB	Gold Line Extension	Claremont in Los Angeles County	Montclair in San Bernardino County	Light Rail extension (1.5 miles)
SB	Metrolink Commuter Rail	Countywide		Service Expansion; SB Line 52 daily trains, Riverside line 40 daily trains, IEOC line 28 daily trains
SB	Local Transit Service	Countywide		Local Transit Service
SB	Elderly & Handicapped Assistance	Countywide		Elderly & Handicapped Assistance

Table 3.5-6: Draft 2004 RTP Projects With Potential Noise Impacts

CO	Route/Program	From	To	Description
SB	I-15	Devore	Summit	Truck Climbing Lane
VE	SR-33 (Casitas Bypass)	Foster Park	Creek Rd	Expressway
VE	SR-118	SR-232	Moorpark	Expressway
VE	Metrolink Commuter Rail	Ventura	Los Angeles County Line	Service Expansion
VE	Tunnel 26			Rail Tunnel Reconstruction
VE	Metrolink Commuter Rail	Coast Main Line		Enhanced Metrolink Capital Maintenance
REG	Maglev	Regionwide		By 2015 - IOS (West LA to Ontario); By 2030 - Total Regional System
REG	I-710 Corridor	Port of Long Beach/Los Angeles	SR-60	User Fee-Backed Capacity Improvement
REG	East-West Corridor (I-210, SR-210, I-10, SR-60, SR-91)	I-710 Corridor	I-10/SR-60 Interchange	User Fee-Backed Capacity Improvement
REG	I-15 Corridor	Eastern Gateway Corridor	Barstow	User Fee-Backed Capacity Improvement
REG	Regional rail capacity improvement program	Regionwide		Main line tracks and grade separation improvements

Table 3.5-7 shows the percentage of freeways and arterials in each county and in the region that would experience noise levels exceeding 66 dBA, the Caltrans noise abatement criteria for noise sensitive land uses. The evaluation did not take into account whether there are sensitive receptors located adjacent to the freeways and arterials, but evaluates all roadways equally regardless of whether sensitive land uses are located adjacent thereto.

Transit

The 2004 RTP includes projects for rail transit and Metrolink. It is anticipated that any noise sensitive land uses located immediately adjacent to these lines would be significantly impacted. The existing urban rail and Metrolink system would experience increased use. Sensitive uses located along existing lines would be further exposed to noise associated with increased rail and light rail activities.

Maglev System

The environmental document for the Maglev system concludes that areas separated from the Maglev alignment by an existing freeway would not experience impacts because of the distance from the Maglev guideway. In addition, noise levels generated from the existing freeway are expected to be greater than the Maglev operational noise at the opposite side of the freeway.

Mitigation Measures

MM 3.5-2a: As part of the appropriate environmental review of each project, a project specific noise evaluation shall be conducted and appropriate mitigation identified and implemented.

MM 3.5-2b: Project implementation agencies shall employ, where their jurisdictional authority permits, land use planning measures, such as zoning, restrictions on development, site design, and use of buffers to ensure that future development is compatible with adjacent transportation facilities.

MM 3.5-2c: Project implementation agencies shall, to the extent feasible and practicable, 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.

MM 3.5-2d: Project implementation agencies shall construct sound reducing barriers between noise sources and noise-sensitive land uses. Sound barriers can be in the form of earth-berms or soundwalls. Constructing roadways so as appropriate and feasible that they are depressed below-grade of the existing sensitive land uses also creates an effective barrier between the roadway and sensitive receptors.

MM 3.5-2e: Project implementation agencies shall, to the extent feasible and practicable, improve the acoustical insulation of dwelling units where setbacks and sound barriers do not sufficiently reduce noise.

Table 3.5-7: Percentage of Roadways Where Noise Levels Exceed 66 dBA* (Regardless of Land Use)

Scenario	Facility	Los Angeles County	Orange County	Riverside County	San Bernardino County	Ventura County	Total (region-wide)
2000 (Existing)	Freeways	90%	97%	98%	100%	100%	95%
	Arterials	17%	24%	22%	22%	23%	20%
2030 No Project	Freeways	93%	94%	95%	96%	98%	95%
	Arterials	23%	25%	30%	23%	24%	24%
2030 Plan	Freeways	90%	98%	95%	100%	99%	95%
	Arterials	21%	21%	30%	25%	15%	23%
2030 Modified RTP	Freeways	89%	98%	95%	100%	99%	94%
	Arterials	22%	21%	31%	25%	16%	24%
2030 PILUT 1	Freeways	93%	99%	94%	100%	97%	96%
	Arterials	22%	18%	27%	27%	17%	23%
2030 PILUT 2	Freeways	94%	99%	96%	99%	97%	96%
	Arterials	21%	19%	27%	24%	15%	22%

* A noise level above 66 dBA is the Caltrans noise abatement criteria for sensitive receptors; this table does not include consideration of adjacent land uses but evaluates all roadways equally regardless of adjacent uses.

Note: for future conditions (2030) table includes roadways where noise levels increase by 3dBA or more and result in a noise level greater than 66 dBA.

MM 3.5-2f: The project implementation agencies shall implement, to the extent feasible and practicable, speed limits and limits on hours of operation of rail and transit systems, where such limits may reduce noise impacts.

MM 3.5-2g: To reduce noise impacts, maximize distance of the Maglev route alignment from sensitive receptors. If the Maglev guideway is constructed along the center of a freeway, operation noise impacts would be reduced by the increase in distance to the noise sensitive sites and the masking effects of the freeway traffic noise.

MM 3.5-2h: Reduce Maglev speed in the vicinity of sensitive receptors.

MM 3.5-2i: As a last resort, eliminate the noise-sensitive receptor by acquiring rail and freeway right-of-way. This would ensure the effective operation of all transportation modes.

MM 3.5-2j: Passenger stations, central maintenance facilities, decentralized maintenance facilities, and electric substations should be located away from sensitive receptors.

Significance After Mitigation

Although mitigation measures are implemented for the impact, it may not reduce noise levels to below regulatory levels, therefore, the impact would be **significant**.

Impact 3.5-3: Sensitive receptors could be exposed to noise in excess of normally acceptable noise levels or substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.). This is considered a potentially significant impact.

Using GIS and overlaying the Draft 2004 RTP projects on land uses, it is possible to determine the number of sensitive receptors that could face a substantial and permanent increase in noise levels. Using a 150' buffer, at least the following sensitive receptors could be impacted by the proposed 2004 RTP Projects:

- 1 college
- 1 hospital
- 4 elementary schools
- 3 middle schools
- 1 vocational high school
- 2 high schools
- 2 senior citizen's facilities
- 7 religious schools.

Mitigation Measures

Mitigation measures intended to reduce the noise impacts on sensitive receptors are part of the 2004 RTP. These include: site design, buffers, soundwalls, etc. Further reduction in noise impacts would be obtained through the implementation of the measures described in **MM 3.5-2a through MM 3.5-2j**.

Significance After Mitigation

Although mitigation measures are recommended for the impact, they may not reduce noise levels to below regulatory levels. Therefore, the impact would be **significant.**

Cumulative Impact 3.5-4: Regional cumulative ambient noise levels could increase to exceed normally acceptable noise levels or have substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic

resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.). This is considered a potentially significant impact.

The projects included in the 2004 draft RTP could have a significant impact on total noise in the region. Many of the projects involved construction and that potential noise is outlined in **Impact 3.5-1**. While the construction noise is temporary and short term at the project level, the cumulative construction noise region wide could be significant. Over the course of the planning horizon there is likely to be constant construction within the region.

Forecasts for population and job growth are one factor driving the potential increase of ambient noise in the region. Sources of ambient noise increase include: housing construction, industrial manufacturing, etc.

Cumulative transportation noise could also increase. This ambient noise increase could be related to: aircraft overflights, port noise, ship horns, railroads, as well as freeway, arterial and transit noise.

Mitigation Measures

Mitigation measures intended to reduce the noise impacts on sensitive receptors are part of the 2004 RTP. These include: site design, buffers, soundwalls, etc. Further reduction in noise impacts would be obtained through the implementation of the measures described in **MM 3.5-2a through MM 3.5-2j**.

Significance After Mitigation

Although mitigation measures are recommended for the impact, this may not reduce noise levels to below regulatory levels. Therefore, the impact would be **significant.**

Comparison with the No Project

Through the construction of transportation projects, and increases in traffic volume and speed, the draft 2004 RTP projects may create substantially more noise than the No Project. By not implementing the 2004 RTP (No Project Alternative) the levels of cumulative ambient noise could be substantially less than with the proposed 2004 RTP implementation.

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3.6 AESTHETICS AND VIEWS

INTRODUCTION

This section describes the aesthetics and views in the SCAG region, identifies the potential impacts of the RTP on these resources, includes mitigation measures for the impacts, and evaluates the residual impacts.

ENVIRONMENTAL SETTING

The environmental setting for this chapter begins with definitions for viewsheds and visual quality. The environmental setting then describes the regionally significant resources and lists the designated scenic highways, byways, and vista points.

Viewshed

A viewshed is the area within the field of view of an observer and is commonly used to describe the extent of a scenic resource. The extent of a viewshed 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 is the character, condition, and quality of a scenic landscape or other visual resource and how it is perceived and valued by the public.[1] Various jurisdictions within the SCAG region, 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 Caltrans Scenic Highway Visual Quality Program Intrusion Examples which is presented in Table 3-6.1. As the 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, no uniform standards apply to all areas within the region.

Aesthetically Significant Resources

Aesthetically significant resources occur in a diverse array of environments within the SCAG region, ranging in character from urban centers, to rural agricultural lands, to natural woodlands. The extraordinary range of visual features in the region is afforded by the mixture of climate,

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[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.

Table 3.6-1: Caltrans Scenic Highways Program - Examples of Visual Quality Intrusions

	Minor Intrusion	Moderate Intrusion	Major Intrusion
BUILDINGS: Residential Development, Commercial Development, 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 these 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 ridge lines. 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 and visible but programmed/funded for removal and site restoration.	Not screened and visible by motorists. Will not be removed or modified. Scenic view is degraded.
STRIP MALLS			
		Neat and well landscaped. Single story. 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.
NOISE BARRIERS			
		Noise barriers are well landscaped and complement the natural landscape. Noise barriers do not degrade or obstruct scenic view.	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. Scenic view is degraded.
CLEARCUTTING			
		Trees bordering highway remain 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: California Department of Transportation. (1996, March). *Scenic highways program.* Sacramento, CA: Author.

topography, and flora and fauna found in the natural environment, and the diversity of style, composition, and distribution of the built environment.

Natural features include land and water resources such as park and open space areas, wilderness areas, beaches, and natural water sources. 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. Views of various mountain ranges are also prevalent throughout the region. Other natural features that may be visually significant in the SCAG region include the numerous rivers, streams, creeks, lakes and reservoirs located within the region. 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 visually significant built environment may include bridges or overpasses, architecturally appealing buildings or groups of buildings, landscaped freeways, and a location where a historic event occurred.

Designated Scenic Highways, Byways, and Vista Points

The roadways that have been designated in the SCAG region as State Scenic Highways are portions of the State Routes (SRs) listed below in Table 3.6-2. They also are shown in Figure 3.6-1. There are two Caltrans-designated vista points in the SCAG region: the Lamont/Odet vista point on SR-14 in Los Angeles County and the Indian Hill Road vista point on SR-243 in Riverside County. These are also shown in Figure 3.6-1. The roadways in the SCAG region that are eligible to be designated as State Scenic Highways are listed in Table 3.6-3.

Table 3.6-2: Officially Designated State Scenic Highways

Route	County	Location	Miles
2	Los Angeles	From 2.7 miles north of SR 210 (at La Canada) to San Bernardino County line	55.1
33	Ventura	From 6.4 miles north of SR 150 to Santa Barbara County line	39.8
38	San Bernardino	From 0.1 mile east of South Fork Campground to 2.9 miles south of SR 18 at state line	15.8
62	Riverside	From I-10 to San Bernardino County line	9.2
74	Riverside	From west boundary of San Bernardino National Forest to SR 111 in Palm Desert	47.7
91	Orange	From SR 55 to east city limit of Anaheim	4.2
243	Riverside	From SR 74 to Banning City Limit	28.2

Source: California Department of Transportation. (n.d.). Officially designated state scenic highways. Retrieved July 28, 2003, from http://www.dot.ca.gov/hq/LandArch/scenic/schwy1.html

Table 3.6-3: SCAG Roadways Eligible for State Scenic Highway Designation

Route	County	Location (From/To)	Post Miles
1	Orange/ Los Angeles	I-5 SO San Juan Cap./SR 19 Nr Long Beach	0.0-3.6
1	Los Angeles/ Ventura	SR 187 Nr Santa Monica/SR 101 Nr El Rio	32.2-21.1
2	Los Angeles/ San Bernardino	SR 210 in La Canada Flintridge/SR 138 Via Wrightwood	22.9-6.36
5	San Diego/ Orange	Opposite Coronado/SR 74 Nr San Juan Cap.	R14.0-9.6
5	Los Angeles	I-210 Nr Tunnel Station/SR 126 Nr Castaic	R44.0-R55.5
8	San Diego/ Imperial	Sunset Cliffs Blvd/SR 98 Nr Coyote Wells	T0.0-R10.0
10	San Bernardino/ Riverside	SR 38 Nr Redlands/SR 62 Nr Whitewater	30.9-29.7
15	San Diego/ Riverside	SR 76 Nr San Luis Rey River/SR 91 Nr Corona	R46.5-41.5
15	San Bernardino	SR 58 Nr Barstow/SR 127 Nr Baker	76.9-R136.6
18	San Bernardino	SR 138 Nr Mt Anderson/SR 247 Nr Lucerne Valley	R17.7-73.8
27	Los Angeles	SR 1/Mulholland Dr.	0.0-11.1
30	San Bernardino	SR 330 Nr Highland/SR 10 Nr Redlands	T29.5-33.3
33	Ventura	SR 101 Nr Ventura/SR l50	0.0-11.2
33	Ventura/Santa Barbara/ San Luis Obispo	SR 150/SR 166 in Cuyama Valley	11.2-11.5
38	San Bernardino	SR 10 Nr Redlands/SR 18 Nr Fawnskin (All)	0.0-49.5
39	Los Angeles	SR 210 Nr Azusa/SR 2	14.1-44.4
40	San Bernardino	Barstow/Needles	0.0-154.6
57	Orange/ Los Angeles	SR 90/SR 60 Nr City of Industry	19.9-R4.5
58	Kern/ San Bernardino	SR 14 Nr Mojave/I-15 Nr Barstow	112.0-R4.5
62	Riverside/ San Bernardino	I-10 Nr Whitewater/Arizona SL (All)	0.0-142.7
71	Riverside	SR 91 Nr Corona/SR 83 NO Corona	0.0-G3.0
74	Orange/ Riverside	I-5 Nr San Juan Capistrano/I-111 (All)	0.0-R96.0
74	Riverside	W Bdry San Bernardino Nat'l Forest/SR 111	48.3-96.0
78	San Diego/Imperial	SR 79 Nr SYsabel/SR 86 Passing Nr Julian	51.1-13.2
79	San Diego/Riverside	SR 78 Nr Santa Ysabel/SR 371 Nr Aguanga	20.2-2.3
91	Orange/Riverside	SR 55 Nr Santa Ana Canyon/I-15 Nr Corona	R9.2-7.5
101	Los Angeles/ Ventura/ Santa Barbara/ San Luis Obispo	SR 27 (Topanga Canyon Blvd)/SR 46 Nr Paso Robles	25.3-57.9
111	Imperial/ Riverside	Bombay Beach-Salton Sea SP/SR 195 Nr Mecca	57.6-18.4
111	Riverside	SR 74 Nr Palm Desert/I-10 Nr Whitewater	39.6-R63.4
118	Ventura/ Los Angeles	SR 23/Desoto Ave. Nr Browns Canyon	17.4-R2.7
126	Ventura/ Los Angeles	SR 150 Nr Santa Paula/I-5 Nr Castaic	R12.0-0R5.8
127	San Bernardino/ Inyo	I-15 Nr Baker/Nevada SL (All)	L0.0-49.4
138	San Bernardino	SR 2 Nr Wrightwood/SR 18 Nr Mt Anderson	6.6-R37.9
142	San Bernardino	Orange CL/Peyton Dr.	0.0-4.4
150	Santa Barbara/ Ventura	SR 101 Nr Ven/SB CL/SR 126 Nr Santa Paula	0.0-34.4
173	San Bernardino	SR 138 Nr Slvrwd Lk/SR 18 SO Lk Arwhd (All)	0.0-23.0
210	Los Angeles	I-5 Nr Tunnel Station/SR 134	R0.0-R25.0
215	Riverside	SR 74 Nr Romoland/SR 74 Nr Perris	23.5-26.3
243	Riverside	SR 74 Nr Mountain Cntr/I-10 Nr Banning (All)	0.0-29.7
247	San Bernardino	SR 62 Nr Yucca Valley/I-15 Nr Barstow (All)	0.0-78.1
330	San Bernardino	SR 30 Nr Highland/SR 18 Nr Running Springs (All)	29.5-44.1

Source: California Department of Transportation. (n.d.). *The California scenic highway system: A list of eligible and officially designated routes.* Retrieved February 3, 2003, from http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm

Urban Transportation Features

Elements of the transportation infrastructure, including roadways, freeways, bridges, and railroads are a large component of the urban environment and have an effect on the visual environment. A discussion of these components is included below.

Freeways, Highways, and Roadways

In urban areas, roadway rights-of-way comprise 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. 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 are often barriers to views of near and distant scenery. Arterials and freeways comprise 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) crosses 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, its beaches and rugged cliffs, through Los Angeles and Ventura Counties where it continues on to Northern California.

- 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 Carillo State Beach in Malibu.

- 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 affords 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: 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

Mountainous portions of Imperial County are not generally accessible from County roads. Large areas in the Chocolate Mountains are owned by the military and are not accessible to civilians.

Trains

An additional transit mode in the region is passenger rail operations (AMTRAK, Metrolink, and MTA facilities), which occupy existing railroad tracks and right-of-way areas. In terms of routes and overall passengers served, this mode is limited. Except in predominately residential areas, the view of passenger trains (at-grade or elevated guideways) is not generally considered visually offensive to most viewers. 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 negative aesthetic resources 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 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 right-of-ways, and hillside areas. Railyard 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 LAX, Palmdale Airport, Long Beach Airport (LGB), and Bob Hope Airport (BUR) in Los Angeles County; John Wayne Airport (SNA) in Orange County; Ontario International Airport (ONT), San Bernardino International Airport, and Southern California Logistics Airport in San Bernardino County; and Palm Springs International Airport (PSP) and March Inland Port in Riverside County.

From an aesthetic resources standpoint, the proximity of aviation facilities to residential areas is not generally considered advantageous. In large part, this is 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 nearby residential areas.

Within the SCAG region, proximal views of takeoffs and landings of large commercial aircraft occur in proximity to literally 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 a great deal 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) 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 also one of the most important shipping locations in the western United States. Proximity to rail and air transport facilities increases the utility and importance of these ports. Because of security concerns, ports generally block public access to the waterfront, limiting visual access as well.

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.

REGULATORY SETTING

The regulatory setting describes the federal, state, and local agencies that have jurisdiction over aesthetics and views. The regulations pertinent to aesthetics and views that each of these agencies enforce are also described.

Federal Agencies and Regulations

Federal Highway Administration (FHWA) – National Scenic Byways Program

The Federal Highway Administration's (FHWA) National Scenic Byways Program designates selected highways as an "All American Road" (a roadway that is a destination unto itself) or "National Scenic Byway" (a roadway that possesses outstanding qualities that exemplify regional characteristics).

United States Bureau of Land Management (BLM) – Scenic Areas

The United States Bureau of Land Management (BLM) designates some of its holdings as Scenic Areas and some roadways in remote areas as Back Country Byways. The counties of San Bernardino, Riverside, and Imperial in the SCAG region include land with such BLM designations.

United States Forest Service (USFS) – National Scenic Byways Program

The United States Forest Service also has a National Scenic Byways Program, independent from the BLM program, 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 Agencies and Regulations

California Department of Transportation (Caltrans) – California Scenic Highways Program

The California Scenic Highways Program was created by the state legislature in 1963 to preserve and protect scenic highway corridors from change that would reduce the aesthetic value of lands adjacent to highways. 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.

Local Agencies and Regulations

For the most part, local planning guidelines have been developed in General Plans to preserve and enhance the visual quality and aesthetic resources of urban and natural areas. As discussed in the Land Use section of this document, the zoning code implements the goals and objectives of the General Plan. The value attributed to a visual resource generally is based on the characteristics and distinctiveness of the resource and the number of persons who view it. Vistas of undisturbed natural areas, unique or unusual features forming an important or dominant portion of a viewshed, and distant vistas offering relief from less attractive nearby features are frequently considered to be scenic resources. In some instances, a case-by-case determination of scenic value may be needed, but often there is agreement within the relevant community about which features are valued as scenic resources.

In addition to state designations, cities and counties have their own scenic highway designations, which are intended to preserve and enhance existing scenic resources. Criteria for designation are commonly included in the conservation/open space element of the city or county General Plan.

Cities and counties can use open space easements as a mechanism to preserve scenic resources, if they have adopted open-space plans, as provided by the Open Space Easement Act of 1974 and codified in California Government Code, Section 51070 et seq. According to the Act, a city or county may acquire or approve an open-space easement through a variety of means, including using public money.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts of implementation of the proposed Plan on aesthetics and views.

Comparison with the No Project

The analysis of aesthetics and views includes a comparison between the expected future conditions with the proposed Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts, however it provides a meaningful perspective on the effects of the 2004 RTP.

Determination of Significance

The methodology for determining the significance of these impacts compares the existing setting to expected future Plan conditions, as required in CEQA Guidelines Section 15126.2(a). The analysis assesses expected impacts to designated scenic resources, including scenic highways or vista points that may be caused by projects proposed within the Plan, and identifies the potential impacts of associated growth. The following factors were considered in assessing the significance of impacts from the proposed Plan on scenic resources:

Scale – the size, proportion, and sustainability (or “fit”) of a transportation improvement to the surrounding area; and

Degree of visibility – the extent to which the transportation improvement can be seen. This depends to a large extent on route alignment and configuration (i.e., elevated, at grade, depressed, or underground) of the improvement. Generally, elevated and at grade transportation investments have a more substantial impact on aesthetics and views.

SIGNIFICANCE CRITERIA

A significant impact is defined as “a substantial or potentially substantial, adverse change in the environment” (Public Resource Code § 21068). The proposed Plan would have a significant impact on aesthetics and views if implementation would:

- Obstruct scenic resources (i.e., mountains, ocean, rivers, or significant man-made structures) as seen from an existing transportation facility or from the surrounding area;
- Alter the appearance of designated scenic resources along or near a state-designated scenic highway or vista point;

- Create significant contrasts with the scale, form, line, color and/or overall visual character of the existing landscape setting;
- Add visual elements of urban character to an existing natural, rural or open space area or add a contemporary element to a historic area; or
- Result in a cumulatively considerable adverse effect to aesthetics and views.

IMPACTS AND MITIGATION MEASURES

Implementation of the 2004 RTP would affect aesthetics and views. Expected significant impacts would be the obstruction of scenic views and resources, altering areas along state designated scenic highways and vista points, creating significant contrasts with the scale, form, line, color and overall visual character of the existing landscape, and adding visual urban elements to rural areas. Cumulative impacts would include contrasts with the overall visual character of the existing landscape.

Both short term construction related impacts and long term or permanent impacts potentially would occur as a result of implementation of the 2004 RTP. Below are descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the 2004 RTP. Indirect impacts (due to the changes in population distribution expected to occur in combination with the 2004 RTP's transportation investments and transportation and land use policies) are discussed under cumulative impacts.

The highway and arterial projects proposed in the 2004 RTP primarily consist of widening existing highways and constructing new interchanges. Many projects and/or programs proposed in the 2004 RTP would not involve construction activities. However, some projects involve constructing new highway segments including auxiliary goods movement roadway facilities and mixed flow connectors.

Many of the proposed public transit projects would involve service alterations on existing streets, highways, and rail lines only. Other proposed public transit projects would involve the possible construction of new rail lines. Some public transit projects may include new stations or upgrades to existing stations.

Generally, proposed projects are of the following two types:

- **New Systems:** new facilities, goods movement roadway facilities, rail corridors, flyovers, interchanges, and Maglev.
- **Modifications to Existing Systems:** widening bridges, HOV, HOT, grade crossings, and maintenance operations.

Impacts to scenic resources resulting from these proposed projects would depend on several factors such as the type of project proposed for the given area, scenic resources in the given area, and duration of the proposed construction activities.

In general, scenic resources potentially would be significantly impacted by projects proposing new systems (i.e., new facilities, goods movement roadway facilities, rail corridors, flyovers, interchanges, and Maglev). Construction and operation of projects proposed within the 2004 RTP potentially would significantly impact scenic resources located in the vicinities of these new system projects. Modification projects generally would result in short-term construction impacts to scenic resources.

The following discussion presents a regional evaluation of potential impacts of 2004 RTP projects on scenic resources. However, it should be noted that significant impacts and appropriate mitigation measures would need to be identified and assessed on a project-by-project basis.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.6-1: Construction and implementation of individual 2004 RTP projects potentially would obstruct views of scenic resources.

Construction of new facilities, expansion of existing facilities or development of previously undisturbed sites potentially would block or impede views of scenic resources in a given area. For example, construction of highways, flyovers, interchanges, goods movement roadway facilities, Maglev, and sound walls for these projects potentially would block or impede views of mountains, oceans, or rivers.

Proposed projects in the 2004 RTP include construction of roadway improvements such as grade separated facilities for busways, goods movement roadway facilities, and HOV connectors. Grade separated facilities potentially would block or impede views of surrounding scenic resources during and after construction. Moreover, the elevation and scale of the proposed grade separated facilities potentially would be visually intrusive to surrounding areas (depending on the degree of visibility of the transportation facility).

Construction of transportation facilities that involve modifications like widening or upgrading existing roadways would involve lesser changes to the visual environment. These modification projects would most likely occur within existing roadway facilities and/or would require acquisition of right-of-way property. However, such changes may not block or impede views of scenic resources to a greater extent than at present.

New Projects

The proposed 2004 RTP would include projects involving new systems, as well as projects that would involve modifications to existing facilities. The proposed new system highways and arterials are located throughout the region. Construction of a new SR-18 in San Bernardino County, of a new extension on SR-115 in Imperial County, and of an extension to the SR-241 toll

lanes in Orange County are examples of new highway projects that potentially would obstruct scenic resources.

New light rail transit projects in Los Angeles and Orange Counties, such as the Exposition Line, Gold Line extension, Eastside Line, Green Line extension, and CenterLine also potentially would obstruct views, especially if all or parts of these lines are elevated. If the new rail extensions are constructed underground, the impacts to the surrounding views would only be during construction and, therefore, temporary. If the new rail extensions are constructed aboveground, it potentially would create a significant impact to the visual quality of the area by creating new land uses and potentially blocking views of mountains (i.e., San Gabriel, Santa Monica, and Santa Ana Mountains) and the Pacific Ocean. The impacts potentially would be especially significant if the new rail lines are constructed as elevated alignments. Additionally, new rail system and service improvement projects on existing rail lines are included in the proposed 2004 RTP. The level of impact from these transit projects on the surrounding area depends on whether they are developed underground or aboveground. However, given that most of these projects would use existing railroad right-of-ways, impacts would generally be minimized since, in many cases, they would represent the continuation of an existing or previous use.

An extension of I-710 from I-10 to I-210 would require the acquisition of residential and commercial property in the South Pasadena area. This proposed extension would create a significant impact on the visual quality of the area by creating new land uses and potentially blocking or impeding views of the San Gabriel Mountains. Furthermore, the extension of I-710 through the mostly residential area of South Pasadena potentially would lead to the construction of other visual intrusions like billboards or noise barriers. Depending on the elevation of such structures, the views of the surrounding San Gabriel Mountains potentially would be significantly blocked. The I-710 extension from I-10 to I-210 may be completed with a tunnel, which would avoid or minimize impacts on aesthetics and views. Construction equipment would create temporary impacts to views in the immediate area of the tunneling. However, long term, views would be preserved.

One strategy being explored in the2004 RTP is the concept of dedicated facilities to accommodate truck traffic. This system would comprise upwards of 140 center-line miles of dedicated facilities along alignments extending from the San Pedro Bay ports, through the East-West Corridor, and out to strategic distribution points northeast or southwest of the urbanized areas. These facilities potentially would obstruct scenic views, result in the loss of vegetation along these routes, and change the topography of the given area depending on route alignment. Furthermore, these facilities constructed as elevated lanes and/or larger scale potentially would have significant visual impacts on surrounding land uses during and after construction. Specifically, elevated goods movement roadway facilities would block views of the San Gabriel Mountains, San Jose Hills, Puente Hills, San Bernardino Mountains, and Jurupa Mountains, depending on the alignment chosen for the lanes. The elevation and scale of the proposed grade separated goods movement roadway facilities potentially would be visually intrusive to surrounding areas (depending on the degree of visibility of the transportation facility).

The proposed Maglev system would be located in Los Angeles, Orange, Riverside and San Bernardino Counties. The initial operating segment would be between West Los Angeles and

Ontario International Airport. Future segments would extend the Maglev system to Los Angeles International Airport, Palmdale Airport, March Inland Port, and Irvine by way of Long Beach and John Wayne Airport. Another line would connect Anaheim with Los Angeles Union Station.[3] In total, the proposed Maglev route in 2030 would be approximately 275 miles. The Maglev system would have approximately fourteen stations and would also require land for maintenance and power generation. Provided that the Maglev runs on an elevated track as currently projected, the Maglev potentially would cause a substantial adverse impact on views toward the San Gabriel Mountains, San Jose Hills, the Puente Hills, and the Pacific Ocean.

Projects Involving Modifications of Existing Roadways and Transit Networks

The proposed 2004 RTP includes modification projects in all six counties of the SCAG region. These proposed projects would consist of improvements to existing highways, HOV lanes, HOT lanes, arterials, interchanges, bridges and grade crossings, sound wall retrofitting, and improvements to transit rail and bus services. Potential impacts from modification projects would be less substantial than those potentially created by new system projects. The improvements proposed by these modification projects would occur on existing systems, and are not assumed to be designed at a higher elevation. The modification projects are not expected to block views of scenic resources in their proposed given areas.

Implementation of the 2004 RTP would result in a significant impact to views and scenic resources.

Mitigation Measures

MM 3.6-1a: Project implementation agencies shall implement design guidelines, local policies, and programs aimed at protecting views of scenic corridors and avoiding visual intrusions.

MM 3.6-1b: Project implementation agencies shall, to the extent feasible, construct noise barriers of materials whose color and texture complements the surrounding landscape and development. Noise barriers shall be graffiti resistant and landscaped with plants that screen the barrier, preferably with either native vegetation or landscaping that complements the dominant landscaping of surrounding areas.

Significance after Mitigation

This impact would be considered **significant** because it is likely that there will be situations where visual impacts cannot be mitigated to a less than significant level.

[3] SCAG has completed several studies on different segments of the Maglev system. They are available at the SCAG website: http://www.scag.ca.gov/maglev/

Impact 3.6-2: Construction and implementation of the proposed project potentially would alter the appearance of scenic resources along or near designated scenic highways and vista points.

Many state highways in the region are located in areas of outstanding beauty. The California Department of Transportation's (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 stated in the 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.

According to Caltrans, a scenic corridor is the land generally adjacent to and visible from the highway. A scenic corridor is identified 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.

Many of the proposed projects in the 2004 RTP include countywide improvements to highways, arterials and transit systems. These improvements would potentially fall within a designated scenic corridor. Table 3.6-2 presents a list of the officially designated State Scenic Highways as identified by Caltrans in the 2004 RTP project area. Additionally, Caltrans has designated the following two vista points in the proposed 2004 RTP project area: 1) on SR-14 in Lakeview in Los Angeles County; and 2) at the SR-243 and Indian Hill Road intersection in Riverside County.

Caltrans also creates a list of highways that are eligible for official designation as a scenic highway by the State of California, which are listed in Table 3.6-3. Many of the proposed projects within the 2004 RTP are located within or near these eligible scenic highways, and proposed projects in these areas may potentially create an adverse impact to the scenic resources in the area. The proposed project would be required to comply with applicable rules and regulations governing the protection of that area as a scenic resource.

New Projects

State Scenic Highways are existing routes. Therefore, new projects in the 2004 RTP are not designated as State Scenic Highways.

Projects Involving Modifications of Existing Roadways and Transit Networks

SR-91 is one of the most congested freeways in the SCAG region. Caltrans has designated 4.2 miles of this freeway, from SR-55 to the eastern city limit of the City of Anaheim, as State Scenic Highway. There are several projects in the 2004 RTP that would be built along SR-91 that potentially would impact this Scenic Highway. The 2004 RTP includes improvements along SR-14 connecting Palmdale and the Antelope Valley to Santa Clarita. These improvements include the area on SR-14 where there is a state-designated vista point.

Table 3.6-3 shows the roadways eligible for State Scenic Highway designation in the SCAG region. The 2004 RTP plans projects involving modifications on several routes that are eligible for designation as State Scenic Highways. These projects are listed in Table 3.6-4. As these routes are not yet designated as State Scenic Highways, projects built on these routes are deemed to have a less substantial impact.

Table 3.6-4: 2004 RTP Projects Planned on Roadways Eligible for State Scenic Highway Designation

Route	County
I-5/SR-74 Separation	Riverside
I-10	San Bernardino
I-15	Riverside
I-215	Riverside
SR-18	San Bernardino
SR-38	San Bernardino
SR-57/SR-60 Interchange	Los Angeles
SR-62	San Bernardino
SR-71	Riverside
SR-79	Riverside
SR-91	Los Angeles
SR-91	Riverside
SR-91	Orange
SR-111	Imperial
SR-247	San Bernardino

Source: California Department of Transportation. (n.d.). *The California scenic highway system: A list of eligible and officially designated routes.* Retrieved February 3, 2003, from http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm

Implementation of the 2004 RTP would result in a potentially significant impact to designated or eligible scenic highways or vista points.

Mitigation Measures

MM 3.6-2a: Project implementation agencies shall, where practicable and feasible, avoid construction of transportation facilities in state and locally designated scenic highways and/or vista points.

MM 3.6-2b: Project implementation agencies shall, complete design studies for projects in designated or eligible Scenic Highway corridors and develop site-specific mitigation measures to minimize impacts on the quality of the views or visual experience that originally qualified the highway for Scenic designation.

MM 3.6-2c: If transportation facilities are constructed in state and locally designated scenic highways and/or vista points, design, construction, and operation of the transportation facility shall be consistent with applicable guidelines and regulations for the preservation of scenic resources along the designated scenic highway.

Significance after Mitigation

This impact would remain **significant** because it is likely that there will be situations where visual impacts cannot be mitigated to a less than significant level.

Impact 3.6-3: Construction and implementation of the proposed project potentially would create significant contrasts with the overall visual character of the existing landscape setting.

There is an extraordinary range of urban characteristics and urban-natural environment contrasts throughout the SCAG region. Given the size and diversity of the region, there are no standards that apply to all areas. Therefore, local planning guidelines regarding visual quality of urban areas must be researched and adhered to. A component of the urban environment is the transportation infrastructure. Many roads have been built through the SCAG region connecting urban concentrations with natural areas in the region. Transportation systems have a major effect on the visual environment. As most vehicular movement occurs along transportation corridors, their placement largely determines what parts of the SCAG region will be seen. Arterials and freeways comprise a major component of the existing visual environment of the region. Arterials in the region offer a variety of visual experiences from the uncrowded, undeveloped stretches of rural roads in Imperial, San Bernardino, Riverside and Ventura Counties to the narrow winding roads in the mountain areas and the high-volume urban streets in the densely populated areas of Los Angeles and Orange Counties.

Development of previously undeveloped sites potentially would result in impacts to visual resources. For example, construction of highways in an undeveloped area potentially would result in the loss of vegetation and changes in topography. The introduction of a new transportation facility in a forested area potentially would be highly visible from scenic vistas if constructed aboveground and may not blend with the surrounding land uses. Similarly the

construction of a new transportation system through a developed area potentially would result in land use changes that also result in impacts to visual resources. For example, the extension of a highway through an urban area would require acquisition of residential, commercial and/or industrial property, thereby changing the land use, and consequently, visual quality of the given area.

As already mentioned, proposed projects in the 2004 RTP include construction of roadway improvements such as grade separated facilities for busways, goods movement roadway facilities, and HOV connectors, as well as construction of a Maglev system. Grade separated facilities potentially would have substantial adverse visual impacts on surrounding land uses during and after construction. The elevation and scale of the proposed grade separated facilities potentially would have significant contrasts with the overall visual character of the existing landscape setting. Modification 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-n-ride lots would be constructed primarily within the heavily urbanized portions of the SCAG region and would consequently affect a large number of viewers. Transit centers potentially would be dominant visual elements because of 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 potentially would result in a change in visual quality.

New Projects

The 2004 RTP proposes several new system projects. These would consist of the construction of a new SR-18, extension of SR-115, SR-210, and SR-241, the I-710 extension, new goods movement roadway facilities from the Ports of Long Beach and Los Angeles to Barstow, and new transit light rail lines. The extension of I-710, depending on whether or not it was built above ground or below ground, would require the acquisition of residential and commercial property in the South Pasadena area. This proposed extension potentially would create an adverse impact on the visual character of the existing landscape setting by creating new land uses. Furthermore, the extension of I-710 potentially would potentially lead to the erection of other visual intrusions like billboards or noise barriers along the new highway extension that may not complement the surrounding residential area.

The proposed new system transit projects would include the development of new rail lines. These new proposed light rail extension projects would require the acquisition of residential, commercial and industrial property in numerous cities throughout Los Angeles and Orange Counties. If the new rail extensions are constructed aboveground, it potentially would create a significant impact to the visual character of the area by creating new land uses and disrupting the existing landscape. The impacts potentially would be especially significant if the new rail lines are constructed at a high elevation. Additionally, new rail system and service improvement projects on existing rail lines would be included in the overall proposed 2004 RTP. The level of impact from these transit projects on the surrounding area depends on whether they are developed underground or aboveground.

New interchanges and ramps would also require the acquisition of right-of-way property. It potentially would result in the loss of vegetation and changes in topography of the given area. Furthermore, new interchanges and ramps constructed at a higher elevation and/or larger scale potentially would have significant impacts on the visual character of the existing landscape during and after construction. Specifically, elevated interchanges and ramps may not complement the existing landscape. This potentially would create a potentially significant impact on the visual quality of the area.

One strategy being explored in the 2004 RTP is the concept of dedicated facilities to accommodate truck traffic. This system would comprise upwards of 140 center-line miles of dedicated facilities along alignments extending from the San Pedro Bay ports, through the East-West Corridor, and out to strategic distribution points northeast or southwest of the urbanized areas. Elevated facilities may not complement the existing landscape. Depending on the degree of visibility of the transportation facility, the elevation and scale of the proposed grade separated facilities potentially would be visually intrusive to surrounding areas.

The proposed Maglev system would be located in Los Angeles, Orange, Riverside and San Bernardino Counties. The initial operating segment would be between West Los Angeles and Ontario International Airport. Future segments would extend the Maglev system to Los Angeles International Airport, Palmdale Airport, March Inland Port, and Irvine by way of Long Beach and John Wayne Airport. Another line would connect Anaheim with Los Angeles Union Station.[4] In total, the proposed Maglev route in 2030 would be approximately 275 miles. The Maglev system would have approximately fourteen stations and would also require land for maintenance and power generation. Provided that the Maglev runs on an elevated track as currently projected, the Maglev potentially would be visually intrusive to surrounding areas.

Projects Involving Modifications of Existing Roadways and Transit Networks

The proposed modification projects in the 2004 RTP consist of improvements to existing highways, HOV lanes, HOT lanes, arterials, interchanges, bridges and grade crossings, and improvements to transit rail and bus services. Modification projects would involve modifying or improving existing transportation systems. Since modifications and improvements would be

[4] SCAG has completed several studies on different segments of the Maglev system. They are available at the SCAG website: http://www.scag.ca.gov/maglev/

designed to complement the existing system, there would be lesser changes to the visual character of the existing landscape. Therefore, impacts from modification projects generally would be less substantial.

Mitigation Measures

MM 3.6-3a: Project implementation agencies shall develop design guidelines for each type of transportation facility that make elements of proposed facilities visually compatible with surrounding areas. Visual design guidelines shall, at a minimum, include setback buffers, landscaping, color, texture, signage, and lighting criteria. The following methods shall be employed whenever possible:

- Transportation systems shall be developed to be compatible with the surrounding environment (i.e., colors and materials of construction material).
- If exotic vegetation is used, it shall be used as screening and landscaping that blends in and complements the natural landscape.
- Trees bordering highways shall remain or be replaced so that clear-cutting is not evident.
- Grading shall blend with the adjacent landforms and topography.

Significance after Mitigation

This impact would remain **significant** because it is likely that there will be situations where visual impacts cannot be mitigated to a less than significant level.

Impact 3.6-4: The projects in the 2004 RTP potentially would add visual elements of urban character to an existing natural, rural, and open space area.

The SCAG region contains 38,000 square miles, many of which are in their natural state or are primarily rural. Transportation projects outside of the urban core would add visual elements of urban character to these regions. Some of the projects in the 2004 RTP are located in traditionally a more rural part of the region. New construction and modification projects will add visual elements of urban character to these rural areas.

As the goods movement roadway facilities extend east and north into the Inland Empire they potentially would add visual elements of urban character to these areas. The Maglev system potentially would have the same effect as it extends north to the Palmdale area in North Los Angeles County and east toward San Bernardino and Riverside Counties. The routes of the goods movement roadway facilities and Maglev system are not yet determined. However, they most likely would follow existing freeway routes, thus adding elements of urban character along currently existing transportation routes.

Mitigation Measures

MM 3.6-4a: Project implementation agencies shall design projects to minimize contrasts in scale and massing between the project and surrounding natural forms and development. Project implementation agencies shall design projects to minimize their intrusion into important view sheds and use contour grading to better match surrounding terrain.

MM 3.6-4b: Project implementation agencies shall use natural landscaping to minimize contrasts between the project and surrounding areas. Wherever possible, develop interchanges and transit lines at the grade of the surrounding land to limit view blockage. Contour the edges of major cut and fill slopes to provide a more natural looking finished profile.

Significance after Mitigation

This impact would remain **significant** because the mitigation measures would not be able to reduce the visual elements of urban character to a less than significant level.

Cumulative Impacts

A cumulative impact consists of an impact that is created as a result of the combination of the 2004 RTP together with other projects causing related impacts. Implementation of the 2004 RTP would have the following cumulative impact:

Cumulative Impact 3.6-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the overall visual character of the existing landscape setting.

In addition to transportation investments, the 2004 RTP includes land use policies that would affect the regional distribution of population, households, employment, and facilities and potentially would impact aesthetics and views. One land use strategy in the 2004 RTP is infill development. Infill may result in taller buildings that obstruct views. At the same time, the infill strategy will help preserve the open space in the region, protecting scenic resources.

The region will add approximately 6 million people, 2 million households, and 3 million jobs by 2030. Some of these people will live in households and work at jobs on land that is currently vacant. This conversion of vacant land to residential or other uses would have a significant impact on aesthetics and views. As stated in Chapter 3.1 Land Use, the proposed growth is estimated to create an urban footprint that will consume approximately 500,000 to 700,000 acres of currently vacant land.

Population growth in the region potentially would create contrasts with the overall visual character of the existing landscape because some urban land will have its intensity of use increased and because currently vacant land would be developed into urban uses.

Mitigation Measures

MM 3.6-5a: In visually sensitive site areas, local land use agencies shall apply development standards and guidelines to maintain compatibility with surrounding natural areas, including site coverage, building height and massing, building materials and color, landscaping, site grading, etc.

Significance after Mitigation

This impact would remain **significant** because the population growth projected by 2030 in combination with the projects in the 2004 RTP would consume currently vacant land that would create significant contrasts with the overall visual character of the existing landscape setting.

Comparison with the No Project

In the No Project alternative, the population of the SCAG region grows by 6 million people, however no regional transportation investments are made above the existing programmed projects. The population distribution follows past trends, uninfluenced by additional transportation investments.

Direct Impacts

Since the No Project Alternative includes fewer transportation projects than the 2004 RTP, it would have a lesser impact in terms of obstructing views and scenic resources, creating contrasting land uses and adding visual elements to existing natural, rural, and open space areas. The No Project would not affect any State Scenic Highways or vista points.

The Plan impacts would be greater than the No Project impacts for Impacts 3.6-1, 3.6-2, 3.6-3, and 3.6-4.

Indirect Impacts

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. However, the Plan includes land use measures that would help reduce the consumption and disturbance of natural lands and reduce impacts to aesthetics and views. These mitigating measures are absent in the No Project Alternative. The proposed Plan also includes additional transportation improvements that facilitate access to existing natural lands that would be less accessible with the No Project Alternative. This improved accessibility under the Plan would help facilitate population and economic growth in areas of the region that are currently not developed. Furthermore, the proposed Plan includes additional households and jobs

associated with the economic benefits of implementing the Plan that would consume land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would cumulatively create similar contrasts with the overall visual character of the existing landscape setting.

The Plan impacts will be approximately the same as the No Project impacts for Cumulative Impact 3.6-5.

References

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3.7 BIOLOGICAL RESOURCES

INTRODUCTION

This section describes the existing ecosystems, sensitive species and communities that inhabit the SCAG region and discusses current threats and protection efforts for these biological resources. Furthermore, this section identifies expected impacts of implementation of the RTP on these resources, includes mitigation measures for the impacts, and evaluates the residual impacts.

ENVIRONMENTAL SETTING

The SCAG region includes a rich assemblage of biological resources supported by a variety of elevation, landform, soil and rock types, and climate zones. This varied landscape contains a high diversity and abundance of species, including relatively recently-evolved species and localized habitats with species that occur only in southern California.[1]

Ecosystems in the SCAG Region

An ecosystem is the dynamic complex of plant and animal communities and their associated non-living environment. The exceptionally diverse plant and animal communities of the SCAG region call for a broad approach to their description. Habitat categories appropriate for this scale of diversity will be used here, generally following Barbour and Major's 1977 description of major vegetation types.[2] Typical natural communities and series will be described for each ecosystem type, as well as representative and special status species. Figure 3.7-1, included in the Figure Chapter at the end of this document, shows the general location of natural vegetation types that basically represent the variety of ecosystems within the SCAG. Figure 3.7-2, included in the Figure Chapter at the end of this document, shows the general location of National Wetland Inventory wetlands in the SCAG region. The following is a description of each of these ecosystems within the SCAG region.

Mojave Desert Scrub Vegetation

The vast interior of Southern California is primarily desert, encompassing a diversity of habitats and wildlife species. The Mojave Desert covers much of San Bernardino County and extends west into northern Los Angeles County and south into northern Riverside County. It is generally higher in elevation than other regional deserts, and experiences regular winter frosts and occasional snows. Creosote bush scrub and a variety of saltbush vegetation primarily dominate the Mojave Desert. Joshua trees also cover large areas of the Mojave Desert, and are a

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[1] Munz, P.A. (1974). *A flora of southern California* (pp. 1086). Berkeley, CA: University of California Press.

[2] Barbour, M. G. and Major, J. (Eds.). (1973). *Terrestrial vegetation of California* (pp. 4). City: John Wiley and Sons.

dominant species of Joshua Tree National Monument east of the San Bernardino Mountain range.

In pure stands, Mojave scrub habitat supports few birds, but produces large numbers of seeds that provide large numbers of small mammals with their primary food source. These mammals include ground squirrels (*Spermophilus* spp. and *Ammospermophilus* spp.), kangaroo rats (*Dipodomys* spp.), deer mice (*Peromyscus* spp.), wood rats (*Neotoma lepida*) and kangaroo mice *(Microdipidops* spp.). Conspicuous birds include common ravens (*Corvus corax*), prairie falcons, American kestrels, Swainson's hawks, red-tailed hawks, great horned owls, and barn owls (*Tyto alba*).

Sonoran Desert Vegetation

The Sonoran Desert extends from southern San Bernardino and Riverside Counties to the Mexican border and is generally low-lying with infrequent winter frosts. Similar to the Mojave Desert, creosote bush scrub characterizes much of the Sonoran Desert. In addition, other characteristic plants found in the Sonoran Desert include ocotillo (*Fouquieria splendens*), cholla (*Opuntia* spp).

Migratory birds typically pass through in spring and fall, when conditions are ideal for their journeys. Resident birds, however, depend on desert habitats, and phainopeplas (*Phainopepla nitens*) and white-winged doves (*Zenaida asiatica*) forage on the berries of desert plants. Gambel's quail (*Callipepla gambeli*), black-throated sparrows (*Amphispiza bilineata*), Abert's towhees (*Pipilo aberti*), cactus wrens (*Campylorhynchus brunneicapillus*), LeConte's and Crissal thrashers (*Toxostoma lecontei* and *T. dorsale*), and sage sparrows (*Amphispiza belli*) forage for seeds in desert habitats. Roadrunners (*Geococcyx californianus*) catch small snakes, lizards, and insects.

Desert oases attract large numbers of birds entering California from the southeast. Especially important oases in the SCAG region include Palm Springs, Cottonwood Spring, and Thousand Palms Oasis in Riverside County and Morongo Valley, Twenty-nine Palms, Box "S" Spring, Old Woman Spring, and Saratoga Springs in San Bernardino County. These oasis habitats attract breeding populations of several species that are not commonly found west of central Arizona, including vermilion flycatchers (*Pyrocephalus rubinus*), brown-crested flycatchers (*Myiarchus tyrannulus*), Lucy's warblers (*Vermivora lucida*), and summer tanagers (*Pyranga rubra*).

Aside from a few species of toads along the Colorado River, amphibians are rare or absent from the deserts in the SCAG region. In contrast, a diverse array of reptiles occur in these desert habitats. Typical species include desert tortoises (*Gopherus agassizii*), desert night lizards *(Xantusia vigilis*), chuckwallas (*Sauromalus obesus*), desert iguanas (*Dipsosaurus draconoides*), zebra-tailed lizards (*Uma* spp.), leopard lizards (*Gambelia wislizenii*), collared lizards (*Crotaphytus collaris*), sidewinders (*Crotalus cerastes*), speckled rattlesnakes (*C. mitchellii*), Mojave rattlesnakes (*C. scutulatus*), and western diamondback rattlesnakes (*C. atrox*).

Beach and Dune (Coastal and Interior)

Beach and dune environments are relatively uncommon along the California coast; beach and dune occupies less than one-fourth of the coastline.[3] Within the SCAG region, substantial beach and dune environments are found only near Ventura and Los Angeles. The largest remaining area is the El Segundo Dunes, just north of the Los Angeles Airport.

Dune environments occur in desert areas where wind causes sand accumulation. Like beach dunes, desert dunes are uncommon in the SCAG region. The largest and most spectacular desert dunes are at the Kelso Dunes, the Barchan Dunes near the Salton Sea, and the dunes near Thousand Palms.

Beach and dune vegetation is generally low in plant cover and species richness. Most plant species in this habitat are perennials, usually prostrate plants adapted to an unstable, shifting substrate. The farther from the beach itself (or, in the case of desert dunes, the farther from the sand-bearing prevailing winds), the more stable the dunes and their vegetation become. Typical vegetation series in beach dunes are the sand-verbena-beach bursage (*Abronia* spp.-*Ambrosia chamissonis)* series and dune lupine-goldenbush (*Lupinus chamissonis-Isocoma menziesii)* series. In disturbed areas, the iceplant (*Carpobrotus* spp., *Mesembryanthemum* spp., and *Malephora crocea*) series may be found. In desert dunes, typical vegetation is the desert sand-verbena (*Abronia villosa)* series.

Although few vertebrate species are endemic to beach and dune habitats, there are a number of insects and other invertebrates found only in sand ecosystems. These species include the Globose dune beetle (*Coelus globosus)* and the El Segundo blue butterfly (*Euphilotes battoides allyni)* in the coastal dunes and Hardy's dune beetle (*Anomala hardyorum)* in the desert dunes. Coastal beaches protected from human disturbance provide seasonal nesting habitats for California least terns (*Sterna antillarum browni)* and western snowy plovers (*Charadrius alexandrius nivosus)*.

Montane and Subalpine Forests

The montane and subalpine vegetation in the SCAG region consists of conifer-dominated forests and woodland. These generally occur at elevations of 3,000 feet or more in the Transverse and Peninsular Ranges. At the lower elevations, Coulter pine forms an open woodland with canyon live oak, black oak (*Quercus kelloggii*), ponderosa pine and Jeffrey pine. At somewhat higher elevations, yellow (ponderosa and Jeffrey) pine forest dominate. Farther upslope, upper montane conifer forests are present, consisting of white fir and sugar pine, followed by mountain juniper (*Juniperus occidentalis* ssp*. australis*) woodland on open slopes and ridges and lodgepole pine (*Pinus contorta*) forest on flats and gentle slopes. The highest elevation forests are dominated by limber pine. These forests are found at the highest elevations of the San Bernardino Mountains.

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[3] Barbour, M. G. & Johnson, A.. Beach and dune. In Barbour, M. G. & Major, J. (Eds.). *Terrestrial vegetation of California*. City: John Wiley and Sons.

The actual elevation range of each forest type is dependent on other site factors, such as precipitation, moisture-holding capability of the soil, slope and aspect.

There are no true alpine areas within the highest mountains of the Transverse Range; that is, no areas that are climatically unable to support high-elevation conifer species. However, there are some treeless areas of talus, meadow, and exfoliating rock. Alpine vegetation is found in the talus and scree of Mt. San Gorgonio. Such vegetation includes several species of sedge, rush, and various perennial herbs.

No state or federally listed species occur in the alpine barren and rock habitat. One special status plant species, Sierra podistera (*Podistera nevadensis*), is known from this habitat in the mountains of San Bernardino County, although it is currently believed to be extirpated there. A few special status wildlife species can be found in alpine barrens and rocky, talus slopes of the SCAG region including bighorn sheep (*Ovis canadensis*).

Conifer forests offer multi-layered vegetation that provides foraging, nesting, and roosting substrates for a diversity of wildlife species. Many species, including neotropical migrant bird species, use the bark, branches, and foliage of these forests, including Great horned owls (*Bubo virginiana*), hairy woodpeckers, pileated woodpeckers (*Drycopus pileatus*), olive-sided flycatchers (*Contopus borealis*), western wood pewees (*C. sordidulus*), Steller's jays (*Cyanocitta stelleri*), brown creepers (*Certhia americana*), white-breasted nuthatches (*Sitta carolinensis*), golden-crowned kinglets (*Regulus satrapa*), solitary vireos, yellow-rumped warblers, western tanagers, black-headed grosbeaks, and purple finches (*Carpodacus purpureus*). Black bears (*Ursus americanus*) and black-tailed deer also frequent these forests.

Special status plant species of coniferous forests and woodlands include the Peirson's spring beauty (*Claytonia lanceolata* var*. peirsonii*), Mexican flannelbush (*Fremontodendron mexicanum*), Tahquitz ivesia (*Ivesia callida*), San Bernardino Mountains bladderpod (*Lesquerella kingii* ssp. *bernardina*), Parish's checkerbloom (*Sidalcea hickmanii* ssp. *parishii*), Hidden Lake bluecurls (*Trichostema austromontanum* ssp*. compactum),* Munz's onion, Bear Valley sandwort (*Arenaria ursina*), Cushenbury milk vetch (*Astragalus albens*), Parish's daisy (*Erigeron parishii*), Cushenbury buckwheat (*Eriogonum ovalifolium* var. *vineum*), and Cushenbury oxytheca (*Oxytheca parishii* var*. goodmaniana*).

Special status wildlife species associated with conifer forests of the SCAG region include southern rubber boas (*Charina bottae umbratica*), white-eared pocket mice (*Perognathus alticola alticola*), northern goshawks (*Accipiter gentilis*), and California spotted owls (*Strix.occidentalis*).

The Tecate cypress (*Cypressus forbesii*), is a fire-adapted conifer species found only on low fertility soils. This species grows in several stands in the SCAG region in the vicinity of Sierra Peak in Orange County. Tecate cypress forest is considered a special status natural community by the California Natural Diversity Database (CNDDB), and the Tecate cypress itself is a California Native Plan Society listed species.

Oak Woodlands and Hardwood Forests

Oak-dominated woodlands and forests are found at low- to mid-elevations of the Transverse and Peninsular Ranges. Canyon live oak (*Quercus chrysolepis*) forms forests with Coulter pine (*Pinus coulteri*), bigcone-fir (*Pseudotsuga macrocarpa*), Douglas-fir (*P. menziesii*), and interior live oak (*Quercus wislizenii*) on the higher and inner slopes of the mountains, as well as forming riparian forests along seasonal streams. Coast live oak woodland forms on more coastal slopes, while Engelmann oak (*Q. engelmannii*) woodland and valley oak (*Q. lobata*) woodland grow on deeper alluvial slopes and valleys. California walnut (*Juglans californica*) is found associated with coast live oak, usually on north slopes, and in some places becomes the dominant species. Woodland consists of trees with an understory of grasses and herbs. Introduced grasses dominate the understory, although in some cases native bunchgrasses may be present.

The CDFG recognizes valley oak woodland, Engelmann oak woodland, and California walnut woodland as sensitive woodland communities in the SCAG region. These communities have shown a dramatic decline due to urban and agricultural development in this century.

Hardwood upland forests are found on higher, moister sites than oak woodlands and are distinguished from woodlands by a higher tree density. Walnut forests found on the south side of the San Gabriel Mountains to the Santa Ana Mountains, mainland cherry forest historically found in Los Angeles County, island cherry (*Prunus ilicifolia* ssp. *lyonii)* forest and island ironwood (*Lyonothamnus floribundus*) forest found on the Channel Islands are considered sensitive natural communities.

Hardwood woodlands and forests of the SCAG region are especially attractive to wildlife because they provide important forage and cover for a large number of ground, shrub, and tree nesting raptors. Woodpeckers excavate nest holes in live and dead oaks, and these cavities are subsequently used by other cavity-nesting species, such as American kestrels (*Falco sparverius*), western screech owls (*Otus kennecottii*), tree swallows (*Tachycineta bicolor)*, ash-throated flycatchers (*Myiarchus cinerascens*), white-breasted nuthatches, plain titmice, and western bluebirds (*Sialia mexicana*). Oak acorns provide an important food source for many species including scrub jays (*Aphelocoma coerulesens*), western gray squirrels, and black-tailed deer (*Odocoileus hemionus)*.

Oak foliage and bark attract insects that are important to the diet of birds such as white-breasted nuthatches, plain titmice, Bewick's wrens (*Thryomanes bewickii*), ruby-crowned kinglets *(Regulus calendula*), American robins (*Turdus migratorius*), solitary vireos (*Vireo solitarius*), Hutton's vireos (*V. huttoni*), warbling vireos (*V. gilvus*), orange-crowned warblers (*Vermivora celata*), Nashville warblers (*V. ruficapilla*), yellow-rumped warblers (*Dendroica coronata*), black-throated gray warblers (*D. nigrescens*), western tanagers (*Piranga ludoviciana*), black-headed grosbeaks, fox sparrows (*Passerella iliaca*), northern orioles (*Icterus galbula*), and house finches (*Carpodacus mexicanus*).

The grassland understories of oak woodlands offer foraging habitat and cover for Pacific treefrogs (*Pseudacris (=Hyla) regilla*), western fence lizards (*Sceloporus occidentalis*), California quail (*Callipepla californica*), northern flickers (*Colaptes aureus*), black-tailed hares (*Lepus*

californicus), deer mice (*Peromyscus maniculatus*), gray fox, and black-tailed deer (*Odocoileus hemionus)*.

Hardwood woodland is habitat for several special status plant species, including Orcutt's brodiaea *(Brodiaea orcuttii*), Laguna Beach dudleya (*Dudleya stolonifera*), Mexican flannelbush (*Fremontodendron mexicanum*), heart-leaved pitcher sage *(Lepechinia cardiophylla*) and Nevin's barberry. Hardwood upland forest is also habitat for the Ojai fritillary *(Fritillaria ojaiensis*).

Special status wildlife that frequent hardwood forests and woodlands of the SCAG region include San Diego mountain kingsnakes *(Lampropeltis zonata pulchra*), Cooper's hawks (*Accipiter cooperii)*, golden eagles (*Aquila chrysaetos*), yellow-billed cuckoos, long-eared owls (*Asio otus*), willow flycatchers, brown-crested flycatchers (*Myiarchus tyrannulus*), and Santa Catalina shrews (*Sorex inornatus willetti*).

Grasslands

Grasslands of the SCAG region historically occurred in the deep soils of the larger valleys and coastal plains. These were prime development areas and the native grasslands have been largely eliminated. The remaining grasslands tend to be found in steeper, more rocky or remote parts of the SCAG region. The following describes the vegetation and wildlife found in grassland areas, as well as the special status species found.

Introduced annual grasses dominate the grasslands in the SCAG region. In areas that are relatively undisturbed, a significant portion of the vegetation may consist of native perennial bunch grasses, including members of the genera needlegrass (*Nassella, Stipa),* melic *(Melica),* Junegrass *(Koeleria),* and muhly *(Muhlenbergia)*. The composition and structure of the grasslands in prehistoric times cannot be known with certainty, because so many non-native herbs and grasses have become dominant in the grasslands of today. The California annual grassland series is common in the lower elevation grasslands of the coastal areas. At higher elevations in the Transverse and Peninsular Ranges, perennial grasses are more abundant, including the purple needlegrass (*Nassella (=Stipa) pulchra*), foothill needlegrass *(N. lepida*), and nodding needlegrass (*N. cernua*) series, as well as the one-sided bluegrass (*Poa secunda*) series. Valley needlegrass grassland is a special status community that occurs at scattered locations throughout the western part of the SCAG region.

Because grasslands have been greatly reduced in extent, remaining grasslands offer important habitat for raptors, such as golden eagles, northern harriers (*Circus cyaneus*), and black-shouldered kites (*Elanus caeruleus*). Turkey vultures (*Cathartes aura*), red-tailed hawks (*Buteo jamaicensis*), Say's phoebes (*Sayornis saya*), western kingbirds (*Tyrannis verticalis*), water (=American) pipits (*Anthus spinoletta*), horned larks (*Eremophila alpestris*), American crows (*Corvus brachyrhynchos*), lark sparrows (*Chondestes grammacus*), western meadowlarks (*Sturnella neglecta*), black-tailed hares, California ground squirrels *(Spermophilus beechyi*), and black-tailed deer) are typical wildlife observed in grasslands.

Special status plant species that occur in specialized habitat within grasslands include Munz's onion, San Diego ambrosia (*Ambrosia pumila*), Braunton's milk vetch (*Astragalus brauntonii*),

thread-leaved brodiaea (*Brodiaea filifolia*), Orcutt's brodiaea (*Brodiaea orcuttii*), many-stemmed dudleya (*Dudleya multicaulis*), Conejo dudleya (*D. abramsii* var. *parva*), Conejo buckwheat *Eriogonum crocatum*), Orcutt's linanthus *(Linanthus orcuttii*), and Lyon's pentachaeta (*Pentachaeta lyonii*). Most of these species also occur in communities other than grassland and are restricted to specific soil types, hydrologic regimes, elevation range and geographic distribution.

A variety of special status wildlife species occur in grassland habitats of the SCAG region, including western spadefoot toads (*Scaphiopus hammondii*), Swainson's hawks (*Buteo swainsoni*), prairie falcons (*Falco mexicanus*), black-shouldered kites, golden eagles, burrowing owls (*Athene cunicularia*), Los Angeles pocket mice *(Perognathus longimembris brevinasus*), Stephen's kangaroo rats (*Dipodomys stephensi*), and the Palos Verde blue (*Glaucopysche lygdamus palosverdesensis*) and Quino checkerspot (*Euphydryas editha quino*) butterflies.

California Chaparral

Chaparral is a fire-adapted community of evergreen shrubs, often with small, thickened or leathery leaves. Chaparral is found at middle elevations in the foothills of the Transverse and Peninsular Ranges, often on steep or rocky sites. Deeper soils and lower elevations tend to support grasslands or sage scrub, while higher elevations with cooler temperatures and more rainfall tend to support woodlands.

One of the most common chaparral plant species is chamise (*Adenostoma fasciculatum*); other important shrubs include scrub oak (*Quercus berberidifolia*), manzanitas *(Arctostaphylos* spp.), and ceanothus *(Ceanothus* spp.) species. The chamise series, as well as a number of series in which chamise is co-dominant with bigberry manzanita (*A. glauca*), black sage (*Salvia mellifera*), cupleaf ceanothus (*Ceanothus greggii*), hoaryleaf ceanothus (*C. crassifolius*), white sage (*S. apiana*), and Eastwood manzanita (*A. glandulosa*), are common vegetation series found in chaparral within the SCAG region. The scrub oak series, red shank (*Adenostoma sparsifolium*) series, interior live oak (*Q. wislizenii*) series, and chaparral whitethorn (*C. leucodermis*) series are also common in chaparral. Although chaparral covers a large portion of the SCAG region, none of the chaparral community types are considered sensitive by the CDFG.

Chaparral provides dense cover for a variety of shrub-dependent wildlife species. The wrentit (*Chamaea fasciata*) is a bird found primarily in the chaparral belt of California. Other species often associated with chaparral habitats in the SCAG region include California quail, Anna's hummingbirds, bushtits, Bewick's wrens, northern mockingbirds (*Mimus polyglottos*), California thrashers (*Toxostoma redivivum*), orange-crowned warblers, rufous-sided towhees, California towhees, white-crowned sparrows (*Zonotrichia albicollis*), golden-crowned sparrows (*Z. atricapilla*), and lesser goldfinches (*Carduela psaltria*). Western fence lizards, southern alligator lizards (*Gerrhonotus multicarinatus*), western rattlesnakes (*Crotalus viridis*), and black-tailed deer also frequent chaparral habitats.

Chaparral provides habitat for several special status plant species that usually occur in openings among the shrubs and often on uncommon soils or parent materials. The endangered slender-horned spineflower (*Dodecahema leptoceras*) occurs in chaparral, as well as in coastal sage

scrub. Other special status plant species occurring in chaparral include summer holly (*Comarostaphylos diversifolia* ssp. *diversifolia*), dune larkspur (*Delphinium parryi* ssp. *blochmaniae*), Santa Monica Mountains dudleya (*Dudleya cymosa* ssp. *ovatifolia*), San Gabriel Mountains dudleya (*D. densiflora*), Laguna Beach dudleya (*D. stolonifera*), Conejo buckwheat (*Eriogonum crocatum*), Mexican flannelbush, Santa Susana tarplant (*Hemizonia minthornii*), Nevin's barberry, Lyon's pentachaeta (*Pentachaeta lyonii*), Parish's checkerbloom (*Sidalcea hickmanii* ssp. *parishii*), and crown beard (*Verbesina dissita*).

Few special status wildlife species exclusively require chaparral habitats. The CNDDB lists only the desert monkey grasshopper (*Psychomastix deserticola*) and the Santa Monica shieldback katydid (*Neduba longipennis*) as sensitive species occurring in this habitat.

Southern Coastal Scrub

Coastal sage scrub is a drought-deciduous Mediterranean climate community characterized by soft-leaved, shallow-rooted shrubs. It once covered more than 4,000 square miles in Southern California. As a result of urban and agricultural development, more than 80 percent of this habitat has been eliminated and many of plants and wildlife associated with this community have experienced similar declines. Dominant species include California sagebrush (*Artemisia californica californica*), California buckwheat (*Eriogonum fasciculatum*), beavertail cactus (*Opuntia* spp.) and black sage (*Salvia mellifera*). The CNDDB lists three sensitive coastal scrub communities for the SCAG region: southern coastal bluff scrub at localized points along the coast, maritime succulent scrub which occurs on San Clemente and Catalina Islands, and riversidian alluvial fan sage scrub.

The San Diego horned lizard (*Phrynosoma coronatum blainvillei*), coastal western whiptail (*Cnemidophorus tigris multiscutatus*), orange-throated whiptail (*C. hyperthyrus*), agile (or Pacific) kangaroo rat (*Dipodomys agilis*), San Diego pocket mouse (*Perognathus fallax*), and California gnatcatcher (*Polioptila californica*) occur nearly exclusively in coastal sage scrub. The largest assemblage of special status wildlife species in the SCAG region is mapped within coastal sage scrub habitats. In addition to these dependent species, coastal sage scrub also provides habitat for a number of more widespread species that are adapted to chaparral and desert scrub habitats.

Several special status plant species, such as the Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*), slender-horned spineflower (*Dodecahema leptoceras*), Munz's onion (*Allium munzii*), several dudleya species (*Dudleya* spp.), Santa Susana tarplant, and Nevin's barberry, occur in coastal sage scrub.

Wetlands

Wetlands include riparian areas, inland waters, and marine and estuarine environments. Each supports a diverse array of biological communities, described below. Figure 3.7-2 included in the Figure Chapter at the end of this document, displays the wetlands in the SCAG region identified in the National Wetlands Inventory. Table 3.7-1 provides information on the larger natural wetlands

Table 3.7-1: Natural Wetlands

Wetland	Counties Where Located	Protected and Enhanced Area Size, if any	# of known Special Status Species
Aliso Creek Wetlands	OR, RIV, SBD	1 acre protected, 3 acres enhanced	unknown
Anaheim Bay	OR, RIV, SBD		unknown
Bolsa Chica Wetlands	LA	880 acres protected	12
Ballona Lagoon	LA	16.3 acres enhanced	4
Ballona Creek Wetlands	LA	86 acres protected	10
BSA	SBD	118 acres protected	unknown
Calvary Chapel	SBD	100 acres protected	unknown
Colorado Desert District	SBD, IMP, RIV	146 acres enhanced	unknown
Colorado Lagoon	LA	14 acres protected	unknown
Deep Creek	SBD	300 acres protected	unknown
Emma Wood State Beach	VEN	5 acres enhanced	unknown
Hellman Ranch Wetlands	ORA	3.4 acres protected	10
Henrietta Marsh	LA	5 acres enhanced	unknown
Hidden Valley Wildlife Area	RIV	70 acres enhanced	unknown
Huntington Beach Wetlands	OR		9
Imperial Wildlife Area	IMP	325 acres enhanced	unknown
Klondike Canyon PV	LA	160 acres enhanced	unknown
Laguna Lakes	OR	30 acres restored; 3 acres enhanced	6
Lombardi	SBD	102 acres protected	unknown
Los Angeles River	LA		3
Los Cerritos Wetlands	LA	16 acres protected	6
Malibu Lagoon	LA	33 acres protected	8
McGrath Lake	VEN		3
Mugu Lagoon	VEN	2,000 acres protected	33
Mystic Lake	RIV	175 acres protected	unknown
Ormond Beach Wetlands	VEN		12
Picacho State Rec Area	IMP	20 acres enhanced	unknown
San Joaquin Marsh	OR		14
San Juan Creek	OR		1
Santa Ana River Mouth	OR		17
San Jacinto Wildlife Area	RIV	360 acres enhanced	unknown
Santa Clara River Estuary	VEN		8
Santa Margarita River/Lagoon	RIV, SDG	250 acres protected; 600 acres restored	20
Topanga Lagoon	LA		0
Trancas Lagoon	LA		0
Upper Newport Bay	OR	757 acres protected	6
Ventura River Estuary	VEN	110 acres enhanced	10

Sources: California Resources Agency. (1997). Wetland Information. http://ceres.ca.gov/wetalnds/geo_info/so_cal/about_historical_maps.html. Accessed April 2003.

California Coastal Conservancy. (2003). Southern California Wetlands Recovery Project Information System. http://eureka.regis.berkeley.edu/wrpinfor.html. Accessed April 2003.

in the SCAG region. This chapter focuses on the habitats and species that occur in these water bodies. The Water Resources chapter discusses the characteristics of these surface waters.

Riparian Habitats

Riparian plant communities are tree or shrub-dominated communities that occur along streams and rivers. Historically, the most well-developed riparian vegetation occurred on the largest coastal streams, such as the Santa Clara, Los Angeles, Santa Ana, San Gabriel and Santa Margarita Rivers. Typical dominant species in the forests, woodlands and scrubs along these rivers are Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), various species of willow *(Salix* spp.), coast live oak (*Quercus agrifolia*), canyon live oak (*Q. chrysolepis*) and white alder (*Alnus rhombifolia)*. Vegetation series represented in riparian vegetation of the SCAG region include Fremont cottonwood, arroyo willow (*S. lasiolepis)*, black willow (*S. gooddingii)*, Hooker willow (*S. hookeriana)*, red willow (*S. laevigata)*, and mixed willow, as well as coast live oak and canyon live oak series. The characteristics of the major coastal rivers in the SCAG region are provided in Table 3.7-2.

Table 3.7-2: Characteristics of Major Coastal Rivers

River	Watershed Area (acres)	Natural Waterway Miles	% River in Protected Lands	# Stream Crossings	# Special Status Species	# Dams
Santa Barbara Coastal	240,720	633	1%	951	23	11
Santa Clara	1,032,302	2,624	21%	2,649	26	8
Los Angeles	534,420	801	0%	1,440	20	51
San Gabriel	453,960	828	19%	1,405	20	26
Santa Ana	1,082,540	2,033	3%	2,916	73	52
Santa Margarita	473,562	1,033	5%	1,488	45	9
San Luis Rey	495,650	961	2%	1,311	44	18

Source: Information Center for the Environment. (2001). http://endeavor.des.ucdavis.edu. Accessed May 2003.

Desert riparian vegetation occurs along permanent streams, intermittent streams, desert washes, permanent springs, and alkali sinks. Desert riparian vegetation includes Mojave riparian forests, Sonoran cottonwood-willow riparian forest, mesquite (*Prosopis glandulosa* and *P. pubescens)* bosque, desert dry wash woodland, and desert fan palm oasis woodland (mesquite series, fan palm series, arroyo willow, narrowleaf willow (*Salix exigua)*, and Fremont cottonwood series). Where the riparian habitat has been degraded, either through alteration of the hydrology or direct disturbance to the vegetation, the non-native tamarisk (*Tamarix* spp.; in tamarisk series) is often dominant. Most remaining high-quality desert riparian vegetation is considered special status by the CDFG. Major desert riparian systems occur along the Amargosa, Mojave and Colorado Rivers.

Riparian habitats support the densest and most diverse wildlife communities in Southern California. The diversity of plant species, multi-layered vegetation, and perennial water provides a variety of foods and microhabitat conditions for wildlife. Mature willows, oaks, sycamores, and

other riparian trees provide high-quality nesting habitat for wildlife, such as raptors. Cavity-nesting wildlife, such as the Nuttall's woodpeckers (*Picoides nuttalli*), downy woodpeckers (*Picoides pubescens*), northern flickers (*Colaptes auratus*), plain titmice (*Parus inornatus*), white-breasted nuthatches (*Sitta carolinensis*), bats, and western gray squirrels (*Sciurus griseus*) require mature stands of trees. California grape (*Vitis californicus*) vines, blackberries (*Rubus* spp.), elderberries (*Sambucus* spp.), and oaks (*Quercus* spp.) produce important fall and winter foods for birds and mammals. Common wildlife species that depend on the nectar, fruits and seeds of riparian plants include Anna's hummingbirds (*Calyptes anna*), black-headed grosbeaks (*Pheuticus melanocephalus*), rufous-sided towhees (*Pipilo erythrophthalamus*), California towhees (*Pipilo fuscus*), raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and gray foxes (*Urocyon cinereoargenteus*).

Riparian vegetation supports an abundance of insect prey that feed on foliage and stems during the growing season. These insects, in turn, support a high density of migratory and resident birds, including the Pacific-slope flycatchers (*Empidonax difficilis*), western wood pewees (*Contopus sordidulatus*), yellow warblers (*Dendroica petechia*), MacGillivray's warblers (*Oporomis tolmiei*), Wilson's warblers (*Wilsonia pusilla*), warbling vireos (*Vireo gilvus*), bushtits (*Psaltriparus minimus*), and house wrens (*Troglodytes aedon*).

Special status plant species of riparian habitats include Nevin's barberry (*Berberis nevinii*), Davidson's bush mallow (*Malacothamnus davidsonii*), triple-ribbed milkvetch (*Astragalus tricarinatus*), short-joint beavertail (*Opuntia basilaris* var. *brachyclada*) and Parish's gooseberry (*Ribes divaricatum* var. *parishii*).

Some birds typical of riparian habitats such as willow flycatchers (*Empidonax traillii*), least Bell's vireos (*Vireo bellii pusillus*), and yellow-billed cuckoos have been eliminated from most of their historical range in Southern California. Riparian habitats in the SCAG region support small populations of special status wildlife species such as least Bell's vireos (*Vireo bellii pusillus*), southwestern willow flycatchers (*Empidonax traillii extimus*), yellow warblers, arroyo toads (*Bufo microscaphus californicus*) and southwestern pond turtles (*Clemmys marmorata pallida*).

The ephemeral and semiarid nature of the rivers of the SCAG region have not supported an abundance of native fishes, and many native fishes found in the SCAG are currently of endangered or threatened status because of habitat losses and water quality degradation. Native fishes commonly found in the rivers of the SCAG region are probably limited to the speckeled dace (*Rhinichthys osculus)*, and the staghorn sculpins (*Leptocottus armatus).* Less common are special status fishes found in rivers of the SCAG region. These include the threespine unarmored stickleback (*Gasterosteus aculeatus*), the tidewater goby (*Eucylogobius newberryi*), and the southern coastal population of steelhead (*Onchorynchus mykiss*), and the Santa Ana sucker (*Catostomus santaanae*), all of which are on the Federal endangered species list.

Interior Wetlands

Interior wetlands include lakes, wet meadows, freshwater and alkali marshes, alkali meadows, freshwater and alkali seeps, vernal pools, and alkali playas. By their nature, these habitats are uncommon in the arid, summer-dry SCAG region, and most are considered special status by

CNDDB. The larger and fresher the water feature, the more development pressure it has likely experienced.

Wet meadows occur on permanently moist soil and are dominated by perennial grasses, sedges (*Carex* spp.), and rushes (*Juncus* spp.). In the SCAG region, they are most common at higher elevations. Alkali marshes, meadows, and seeps are characterized by plant species adapted to relatively high concentrations of salts. They typically occur in poorly drained areas with relatively high evaporation. Alkali meadows occur on moist soil affected by salts and are dominated by perennial grasses and sedges. Alkali marshes occasionally occur along the Colorado River in eastern Riverside and Imperial Counties. Alkali seeps are scattered throughout desert regions. Alkali playas occur in the desert areas on poorly drained soils with high salinity or alkalinity, often with a high water table and salt crusts on the surface. Some of the common vegetation series represented in these habitats are saltgrass series, sedge series, bulrush (*Scirpus* spp.), cattail (*Typha* spp.), and spikerush (*Eleocharis* spp.) series. Alkali seeps, southern coastal salt marshes, cismontane alkali marshes, and transmontane alkali marshes are recognized as special status communities by CDFG.

Vernal pools are a special example of interior wetlands. They are seasonal freshwater pools that form in depressions over an impermeable soil layer (claypan or hardpan) or parent material. Annual species with low cover and a short life cycle primarily comprise the vegetation in vernal pools. The vernal pools of the Santa Rosa Plateau are isolated from other areas of California in the Central Valley and San Diego County, and they support a distinctive flora with a number of endemic species. Special status invertebrates found in Riverside County vernal pools include the vernal pool fairy shrimp (*Branchinecta lynchi*) and the Riverside fairy shrimp (*Streptocephalus woottoni*).

Interior lakes that are especially important to wildlife in the SCAG region include Silverwood Lake, Lake Arrowhead, Big Bear Lake, and Baldwin Lake in the San Bernardino Mountains, and Lake Hemet in the San Jacinto Mountains. There a number of lakes, including Lake Matthews, Lake Skinner and the Prado Basin in western Riverside County, which serve primarily as reservoirs of potable water, or for flood control, water conservation or emergency storage, but which also support numerous species of wildlife. The open water, mudflats, and emergent vegetation associated with these aquatic habitats are of great importance to birds and other wildlife.

The Salton Sea in Imperial County is by far the largest aquatic habitat in the SCAG region and attracts water birds that are otherwise rare or entirely absent in Southern California. The lakeshore of the sea is largely barren, but extensive marshes exist at the mouths of the Whitewater River at the north end, the New and Alamo Rivers at the south end, and Salt Creek at the eastern shoreline. Finney and Ramer Lakes near the southeast corner of the Salton Sea also provide extensive wetland habitats that attract a variety of wildlife species.

Freshwater marshes are habitat for several special status species, including the endangered marsh sandwort (*Arenaria paludicola)* and Gambel's water cress (*Rorippa gambelii)*. Localized alkali meadows with unusual soil or water characteristics are habitat for a number of special status plants, including slender-petaled thelypodium (*Thelypodium stenopetalum)*, silver-haired ivesia (*Ivesia argyrocoma)*, Baldwin Lake linanthus (*Linanthus killipii)*, and San Bernardino

butterweed (=San Bernardino ragwort, *Senecio bernardinus)*. Plants associated with alkaline meadows in the desert areas include alkali mariposa lily (*Calochortus striatus)*, Tecopa bird's-beak (*Cordylanthus tecopensis)*, and Parish's alkali grass (*Puccinellia parishii*).

Special status wildlife associated with freshwater marshes of the SCAG region include California red-legged frogs (*Rana aurora draytonii*), southwestern pond turtles (*Clemmys marmorata pallida*), great blue herons (*Ardea herodias)*, great egrets (*A. alba*), and bald eagles (*Haliaeetus leucocephalus)*. Freshwater marshes along the Colorado River support the endangered Yuma clapper rail (*Rallus longirostris yumanensis)*.

Coastal Salt Marsh and Estuaries

Coastal wetlands include estuarine and salt marsh wetland communities subject to tidal influence. In the SCAG region, some of the largest estuaries and salt marshes are the Santa Clara River estuary and Mugu Lagoon in Ventura County, Malibu Lagoon and Ballona wetlands in Los Angeles County, and Seal Beach marshes, Bolsa Chica Lagoon, and Upper Newport Bay in Orange County.

Vegetation in coastal salt marsh is generally emergent herbaceous perennial species. The dominant plants all have features that allow them to live in saline soils and to absorb water despite its dissolved salts. Typical vegetation series in coastal salt marsh includes the cordgrass (*Spartina foliosa*) series, in the areas of deepest inundation, pickleweed (*Salicornia* spp.) series in areas flooded frequently but at less depth, and saltgrass series (*Distichlis spicata*) in marginally flooded areas that accumulate salts through evaporation.

Southern California's extensive mainland and island coastal areas include some of the richest habitats for marine birds and mammals in North America. The ocean waters, lagoons, beaches, bays, estuaries, saltwater marshes, and tidal flats provide habitat for an abundance of seabirds, shorebirds, wading birds, and waterfowl. Typical birds of rocky coasts include double-crested (*Phalacrorax auritus)* and pelagic cormorants (*P. pelagicus)*, black oystercatchers (*Haematopus bachmani)*, black turnstones *(Arenaria melanocephala)*, wandering tattlers (*Heteroscelus incanus)*, and surfbirds (*Aphriza virgata)*. Sandy beaches experience heavy human use, but undisturbed areas attract marbled godwits (*Limosa fedoa)*, sanderlings *(Calidris alba*), and special status species, such as western snowy plovers and California least terns.

Several special status plants species occur in southern coastal salt marsh, including the endangered salt marsh bird's-beak (*Cordylanthus maritimus* ssp. m*aritimus)*, recorded in eight locations in Ventura and Los Angeles Counties. Coastal salt marshes support the endangered light-footed clapper rails (*Rallus longirostris levipes)* and Belding's savannah sparrows (*Passerculus sandwichensis beldingi)*.

Coastal Marine Resources

The coastal waters of Southern California are extremely rich in fisheries and other marine resources. Not only is the ecosystem diverse, with 144 families and over 500 species of fishes reported, but it is also very productive. Fish families prominent in the SCAG coastal waters

include 23 species of viviparous perches (Embiotocidae), more than 60 species of sea basses (Sebastes), about 60 species of sculpin (Cottidae), over 20 species of flounder (Pleuronectidae), five species of salmon (Salmonidae), and various rockfishes (Scorpaenidae) and other small bottom fishes (Stichaeidae, Blenniidae, Clinidae).

Coastal waters in Southern California also support a rich assemblage of sea mammals. Pinnepeds include the California sea lion (*Zalophus californicus*), the Federally endangered Guadalupe fur seal (*Arctocephaus townsendi*), and the stellar sea lion (*Eumetopius jubatus*). Cetacan residents of Southern California coastal waters include at least 18 species of whales and dolphins, many of which are Federally endangered. Prominent among those are the Gray whales (*Eschrichtius robustus*) which migrate through the area to coastal birthing and rearing lagoons in Baja California.

Kelp forest, rock-bottom, and shallow sand-bottom communities are the predominant near-shore habitats in Southern California. Several marine species of special status are commonly found in kelp forests. These include the Federally Endangered brown pelican (*Pelecanus occidentalis*), gray whale (*Eschrichtius robustus*) and the sea otter (*Enhydra lutris*).

Special Status Species and Natural Communities of the SCAG Region

A number of species known to occur in the SCAG region are accorded “special status” because of their recognized rarity or vulnerability to habitat loss or population decline. Federal and/or State endangered species listings provide specific protection for some of these species. To meet conservation objectives, state agencies, local jurisdictions, and other organizations apply designations, such as “rare” or “sensitive” to species that have been formally listed as threatened or endangered. These species are referred to collectively as “special status species.”

Table 3.7-3, in the technical appendices, lists, by county, the scientific and common name and protection status for special status species found within the SCAG area. The lists contain several hundred species—plants, fish, amphibians, reptiles, mammals, birds, mollusks, insects and crustaceans. Site-specific information on each of these species is maintained by the CNDDB, including the population size, habitat quality and extent, threats, and when last observed.

The Natural Heritage Division of CDFG identifies special status natural communities. These communities include both those that are naturally rare and those that have been greatly diminished through changes in land use. The CDFG tracks 135 special status natural communities in pursuit of their mandate to seek the long-term perpetuation of the areas in which these communities occur. In some cases, the areas have been established as protected reserves.

The CNDDB reports forty-five special status natural communities in the six-county SCAG region. Table 3.7-4, in the technical appendices, presents these communities, and the counties in which they have been reported. These locations are shown on Figure 3.7-3, included in the Figure Chapter at the end of this document.

Threats to Biological Resources in the SCAG Region

Major threats to biological resources in the SCAG region include habitat loss, fragmentation and degradation, encroachment of non-native species, water diversion and degradation, and other human activities, such as off-road vehicle activity. Residential and agricultural development in the region has reduced open space and substantially limited the range of most of the natural communities. The fragmentation of natural habitat creates isolated "islands" of vegetation that may not provide sufficient area to support sustainable populations and can adversely impact genetic and species diversity. Habitat divided into islands, rather than continuous natural habitat, presents multiple problems to resident animals, including increased predation and direct mortality when attempting to move across developed areas, especially roads.[4]

Within California some 95 percent of the state's historic wetlands have been converted to other land uses. An estimated 5 million acres of wetlands were present in California in the 1780s; by the 1980s the acreage of wetlands in California were reduced to only 450,000 acres.[5] The loss of wetlands has been more pronounced in the SCAG region, because of the intense development experienced by all wetlands along the South Coast, and the relative scarcity of surface waters. Beyond increased urbanization and reduction of open space, additional threats to biological resources in the SCAG region include water diversions and degradation of wetland sites and encroachment of non-native species into riparian and spring areas, water developments, and off-road vehicle activity.

Protection of Biological Resources in the SCAG Region

Table 3.7-5, included in the technical appendices, presents a list of protected areas that provide large, un-fragmented natural habitats within the SCAG region. It should be noted that different ownership and designations of each area by the various agencies affords differing levels of protection. Some agencies protect the land for its natural value and recreational uses only, other agencies are more permissive in uses of the land, allowing activities such as grazing, forestry, or off-road vehicle use.

A variety of regional planning efforts have been undertaken in the SCAG region to more efficiently and effectively achieve the purposes of the state and federal endangered species legislation. . In addition to the traditional project-by-project approach to compliance, the federal Endangered Species Act includes a provision for permitting incidental take of listed species on private lands when a Habitat Conservation Plan (HCP) identifying the anticipated impacts of specific projects and implementing appropriate conservation measures is prepared and approved.

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[4] de Maynadier, P. G. & Hunter Jr, M. Road effects on amphibian movements in a forested landscape. *Natural Areas Journal, 20(1)*, 56-65.

[5] Dahl, T.E. (1990). *Wetlands losses in the United States1790's to 1980's*. Washington, DC: United States Department of the Interior, Fish and Wildlife Service. Retrieved, August 28, 2003, from Northern Prairie Wildlife Research Center Web site: http://www.npwrc.usgs.gov/resource/othrdata/wetloss/wetloss.htm.

The Natural Community Conservation Planning Program (NCCP), established by the California Resources Agency under the Natural Community Conservation Planning Act of 1991, is a voluntary, collaborative effort between local landowners, jurisdictions and the State of California. The program provides protection and identifies mitigation areas to offset future impacts to coastal scrub habitat. The NCCP study area encompasses 6,000 square miles, including portions of Riverside, Los Angeles, Orange, and San Bernardino Counties. Each county has one or more subregional planning areas.[6] Table 3.7-6 provides the status of NCCP programs in the SCAG region.

Table 3.7-6: Natural Communities Conservation Plans

County	Plan	Lead Agency	Planning Area Covered	Plan Status
Los Angeles	Palos Verdes Peninsula Subregional Plan	City of Rancho Palos Verdes	15,000 acres	Final Plan development
Orange	Orange County Central-Coastal NCCP Subregional Plan	Orange County	209,000 acres	Plan approved July 1996
Orange	Orange County Southern Subregion	Orange County	91,000 acres	Developing Draft Plan
Orange	Orange County Northern Subregion	Orange County	see "Status"	4(d) permit issued to Chevron oil field abandonment; includes 28 acre preserve.
Riverside	Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP)	Coachella Valley Association of Governments	1,136,261 acres	Draft Plan/ Draft EIR/S due to be released.
Riverside	Western Riverside County Multiple Species Habitat Conservation Plan	Riverside County	1.2 million acres	Final Plan approved by County in July, 2003; FWS and DFG permits expected by the end of 2003.
San Bernardino	San Bernardino Valley-wide Multiple Species Habitat Conservation Plan	San Bernardino County	320,000 acres	The County is currently collecting data to determine habitat needs.

Sources: California Department of Fish and Game. (2003). *Status of NCCP Planning Efforts*. www.dfg.ca.gov/nccp/status.htm. Accessed June 2003.
Pollak, Daniel. (2001). *The Future of Habitat Conservation? The NCCP Experience in Southern California.* Prepared at the request of Senator Byron D. Sher.

REGULATORY SETTING

The following federal and state regulations affect biological resources. The regulations are organized by the agency that implements them.

Federal Agencies and Regulations

Council on Environmental Quality and U.S. Environmental Protection Agency

NEPA mandates that the federal government shall give appropriate consideration to potential adverse environmental impacts of their major actions, including impacts to biological resources. The Council on Environmental Quality oversees NEPA, and the EPA carries out administrative aspects of the NEPA process.

[6] California Department of Fish and Game. (2002, May 3). *Southern California coastal sage scrub NCCP region*. http://www.dfg.ca.gov/nccp/cssreg.htm Accessed August 2003.

U.S. Fish and Wildlife Service (USFWS)

USFWS is the implementing agency for the FESA. The FESA provides protection for animal and plant species that are currently in danger of extinction (endangered) and species that may become so in the foreseeable future (threatened), and it provides a means to conserve the ecosystems of these species.[7]

“Candidate” species are taxa that USFWS is considering for listing as endangered and threatened, but which have yet to be the subject of a proposed rule, and they are afforded no protection under the FESA. However most federal agencies with resource management responsibilities (USFS, USBLM, USFWS) accord some level of protection or management consideration to candidates, and when long-term planning efforts, such as HCPs, are established, candidate species are often included because they could become listed during the lifetime of the plan. Such policies are not mandatory under the FESA.

Section 7 of this Act requires federal departments and agencies to consult with the USFWS to ensure that actions they authorize, fund, or carry out will not jeopardize species listed under the

FESA. Section 9 of FESA prohibits the "taking"[8] of listed species, including inadvertent harm, harassment, collection, or significant habitat modification, except by authorized permit.

USFWS implements a number of other regulatory acts that affect biological resources. These include: The Migratory Bird Treaty Act, an international treaty for the conservation and management of bird species which may migrate through more than one country; the Federal Bald Eagle Protection Act of 1940, intended to protect individual bald eagles and their nests and eggs from willful damage or injury.

U.S. Army Corps of Engineers

The USACE regulates activities in navigable waterways, wetlands and the ocean through various regulations. USACE have regulatory authority over the dumping of trash and sewage and are responsible for permitting dredge and fill in wetlands. A major aspect of the regulatory program is determining which areas qualify for protection as wetlands.[9] Wetlands are defined as those areas that are inundated or saturated by surface or ground water frequently enough to support vegetation typically adapted for life in saturated soil conditions.

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[7] U.S. Fish and Wildlife Services Fact Sheet. (2002). “*ESA basics*.” Washington, D.C.

[8] "Take" is defined by Federal Regulation Code 17.3 (1975) as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct. The term harm is defined as an act or omission which actually injures or kills wildlife, including acts which annoy it to such an extent as to significantly disrupt essential behavioral patterns, which include, but are not limited to, breeding, feeding, sheltering, or significant environmental modification or degradation of critical habitat that results in these effects."

[9] United States Army Corps of Engineers. (2002, September 24). *Wetlands and waterways regulation and permitting*. http://www.usace.army.mil/public.html#Regulatory Accessed August 2003.

The USACE is also responsible for granting permits to implement the Marine Protection, Research and Sanctuaries Act of 1972. This act regulates the transportation of dredged materials into ocean waters, and it allowed for establishment of Marine Sanctuaries, such as the Channel Islands National Marine Sanctuary.

State Agencies and Regulations

California Department of Fish and Game (CDFG)

CDFG is required under the California Endangered Species Act (CESA), the California Native Plant Protection Act (NPPA), the CEQA, and the Natural Community Conservation Planning Act (NCPPA) to conserve species through listing, habitat acquisition and protection. The CDFG is also responsible for review of local land use planning, multi-species conservation planning, stewardship, recovery, research, and education.

CEQA includes the policy of the state to "prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities." CEQA directs agencies to consult with the CDFG on any project the agency initiates that is not statutorily or categorically exempt from CEQA. CEQA Guidelines (Section 15065a) declare that impacts to rare, threatened or endangered plants or animals are significant, and impacts to other species may be considered significant by the lead agency, depending on the applicability of other laws (e.g., Migratory Bird Treaty Act) and the discretion of the agency.

CDFG is authorized to enter into Streambed Alteration Agreements with applicants that propose a project that would obstruct the flow or alter the bed, channel, or bank of a river or stream, including intermittent and ephemeral streams, where there is a fish or wildlife resource. Streambed Alteration Agreements usually include measures designed to protect biological resources.

California Coastal Commission (CCC)

The CCC manages protection of biological resources through a permitting process for all projects in the coastal zone. 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 5 miles inland from mean high tide line. In developed urban areas, the coastal zone extends substantially less than 1,000 yards inland. In order to carry out the policies of the Coastal Act, city and county in the coastal zone is required to prepare and submit a LCP for the portion of its jurisdiction within the coastal zone to the CCC for certification.

Through the Coastal Act, the CCC has unusually broad authority to regulate development in the Coastal Zone. A permit is required for any projects 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 CCC considers net effects on rare and

endangered species, and whether the project would substantially change any of the existing biological resources, including biodiversity.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts of implementation of the proposed Plan on biological resources.

Comparison with the No Project

The analysis of biological resources includes a comparison between the expected future conditions with the proposed Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the effects of the 2004 RTP.

Determination of Significance

The impact assessment for biological resources focuses on significant effects the proposed Plan and associated growth would likely have on biological resources contained within the SCAG region. The methodology for determining the significance of these impacts compares a regional-level analysis of the future Plan conditions to the existing biological resources, as required in the CEQA Guidelines.

GIS was used to identify projects and associated growth that may cause a significant effect on biological resources. Specifically, using GIS spatial data, potential regional-level adverse effects were identified by overlaying 2004 RTP projects upon the distribution and locations of known biological resources, including natural vegetation, wetlands and water resources, and special status species and communities. GIS analysis calculated the acreage or extent of biological resources occurring within 150 feet and 0.25 miles of either side of freeway, transit and freight rail projects included in the 2004 RTP. The 150 foot zone was used for more precise impacts, such as the conversion of vegetation types. The 0.25 mile zone on either side of the transportation projects was used to capture the effects that extend beyond the road itself, including changes in light, temperature, noise, fire regime, risk of predation and spread of invasive species.

The impacts-analysis identifies direct intersection between proposed Plan projects and existing biological resources and identifies the potential cumulative impact of the transportation projects and associated growth on habitat loss, degradation, and fragmentation. The analysis also includes review of adopted habitat conservation plans to identify potential conflicts with their provisions.

SIGNIFICANCE CRITERIA

A significant impact is defined as “a substantial or potentially substantial, adverse change in the environment” (CEQA § 21068). The proposed Plan would have a significant impact on biological resources if implementation were to:

- Substantially reduce the habitat of a fish or wildlife species;

- Cause a fish or wildlife population to drop below self-sustaining levels;
- Threaten to eliminate a plant or animal community;
- Restrict the range of a rare or endangered plant or animal;
- Substantially and adversely affect, either directly or through habitat modification, any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by DFG or USFWS;
- Substantially and adversely affect any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by DFG or USFWS;
- Substantially and adversely affect federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh and vernal pool) through direct removal, filling, hydrologic 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 provisions of an adopted HCP, Natural Community Conservation Plan; or
- Cause a cumulatively considerable adverse effect on regional biological resources.

IMPACTS AND MITIGATION MEASURES

Implementation of the 2004 RTP would adversely affect biological resources. Expected significant impacts include disturbance and removal of natural vegetation that may be utilized by sensitive species, habitat fragmentation and the associated decrease in habitat quality, litter, trampling, light pollution and road noise in previously undisturbed natural areas, displacement of riparian and wetland habitat, and siltation of streams and other water bodies during construction. Cumulatively, the increased urban development anticipated by the Plan would result in similar cumulative impacts.

Two basic types of impacts would potentially occur from transportation projects identified in the 2004 RTP. These include short-term construction related impacts, and long-term or permanent displacement or offsite impacts from new facilities.

Whenever a project is located near project-specific biological resources of concern, a biological resources evaluation would need to be conducted and project-specific impacts with appropriate feasible mitigation measures identified. Below are descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the 2004 RTP. Indirect, cumulative impacts due to the changes in population distribution expected to occur due to the 2004 RTP's transportation investments, and transportation and land use policies are also discussed.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.7-1: Transportation projects included in the 2004 RTP on previously undisturbed land would potentially displace natural vegetation, and thus habitat, some of which is utilized by sensitive species in the SCAG region.

The significance of this impact would relate to the extent, and type of natural vegetation displaced. It is assumed that any areas of natural vegetation contain potentially significant biological value.

Impacts to sensitive species would not be expected to be limited to those mapped by the CNDDB (Figure 3.7-3 in the Figure Chapter at the end of this document). The CNDDB system relies on reported sitings of sensitive species, and it is not a complete inventory of sensitive species habitat. The intersection of 2004 RTP projects with these known habitat occurrences is provided as additional information. Intersections with point data that are included in CNDDB and that are based on individual species sitings are not included in Table 3.7-7. These point data are of varying reliability. Impacts associated with the intersection of 2004 RTP transportation projects and habitat (shown in Figure 3.7-1 and Table 3.7-8) are more conservative and lend a fuller picture of the potential impacts of the 2004 RTP projects. This analysis of transportation project intersection with natural vegetation and habitat is used to determine significance.

Table 3.7-7: Special Status Habitat and Communities Occurring Within 150 feet of a Freeway, Transit, or Freight Rail Project (acres)

	2004 RTP (highways, transit and freight rail)	No Project
Special Status Plant Habitat	290	50
Special Status Animal Habitat	4,800	950
Special Status Natural Community	470	200

Source: SCAG Analysis. (2003).
UCSB. (1999). GAP Analysis. (Best and most recent regional data available).

The site-specific significance of projects would include the relative scarcity and importance to other valuable biological resources. Additionally, the nature of the site specific transportation project would affect the size of the disruption. Addition of a lane would be expected to cause less disruption than an entirely new road, for example.

Transportation projects in the 2004 RTP that would intersect with special status species habitat known and reported by the CNDDB are shown in Figure 3.7-3 in the Figure Chapter at the end of this document, and potential effects are summarized in Table 3.7-7. There are approximately 5,500 acres of special status plant habitat, animal habitat, and special status aquatic and

Table 3.7-8: Natural Vegetation Occurring Within 150 feet of a Freeway, Transit, or Freight Rail Project (acres)

Vegetation Type	2004 RTP (highways, transit and freight rail)	No Project
Chaparral	3,100	700
Conifer Forests and Woodlands	400	200
Desert Dunes	-	-
Grassland	1,400	80
Hardwood Forests and Woodlands	-	-
Riparian Forest and Scrub	500	300
Scrub	10,000	2,000

Source: SCAG Analysis. (2003).
UCSB. (1999). GAP Analysis. (Best and most recent regional data available).

terrestrial communities that occur within 150 feet of the 2004 RTP freeway, transit, and freight rail projects.

For this assessment, if any measurable area of natural vegetation shown on Figure 3.7-1 was potentially displaced by a project, the impact to natural vegetation was considered significant. As Table 3.7-8 demonstrates, there are approximately 15,400 acres of natural vegetation in the SCAG region that occur within 150 feet of a freeway, transit, or freight rail project in the 2004 RTP. The distribution of potential effects by vegetation categories, as discussed above, is shown in Table 3.7-8.

Additional vegetated area would be impacted by Maglev, goods movement capacity enhancements, and arterial projects. The Maglev projects would eventually involve the construction of 275 route miles of elevated track, along with associated stations and other maintenance structures that could also potentially disrupt biological resources. The alignments of these projects are not developed to the point that analysis of the impacts to natural vegetation communities can be estimated directly. The Maglev potential alignments would encounter chaparral, conifer forests and woodlands, grasslands, riparian forest and scrub, and wetland habitats. The acreage of each of these vegetation types that would be affected would vary with the alignments chosen for each Maglev segment. SCAG expects the proposed goods movements enhancement projects to consist of approximately 140 center lane miles of new facilities. The precise routes, and the number and width of lanes is not yet determined. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width, and arterial projects would involve the construction of 3,300 lane miles, though some of these lane miles may be achieved through re-striping and would not consume additional land. The effects of the Maglev, goods movement enhancement projects, and arterials would contribute to the overall significant impact. Site specific analyses would be necessary once the alignments for these projects are developed.

Site-specific analyses would be required to identify and minimize the potential impacts of each particular transportation and/or development project. However,overall, the 2004 RTP would

substantially affect vegetation communities and habitat, some of which is utilized by species of special status. This impact would be significant.

Mitigation Measures

MM 3.7-1.a: Each transportation project shall assess displacement of habitat due to removal of native vegetation during route planning. Routes shall be planned in order to avoid and/or minimize removal of native vegetation.

MM 3.7-1.b: When avoidance of native vegetation removal is not possible, each transportation project shall replant disturbed areas with commensurate native vegetation of high habitat value adjacent to the project (i.e. as opposed to ornamental vegetation with relatively less habitat value).

MM 3.7-1c: Individual transportation projects shall include offsite habitat enhancement or restoration to compensate for unavoidable habitat losses from the project site.

Significance After Mitigation

Although many measures can be employed to minimize the impacts to habitat due to vegetation removal, for a regional plan of this scale, the impact remains **significant.**

Impact 3.7-2: The 2004 RTP would potentially contribute to the fragmentation of existing habitat, decreasing habitat patch sizes, reducing habitat connectivity, and causing direct injury to wildlife. The 2004 RTP includes new transportation corridors that may form barriers to animal migration or foraging routes.

Wildlife-roadway interactions often injure or kill wildlife (i.e., roadkills). Additionally, the direct effects of road building and widening provide a barrier between existing habitat patches in the SCAG region, serving to isolate habitat into smaller patches and thereby reduce their quality, especially for species with large home ranges.[10]

Where the barrier is effective, such disturbances can lead to further ecological disruptions from influenced prey-predator interactions and species alterations. The linear nature of transportation projects increases the potential extent and significance of this effect. The 2004 RTP would add approximately 6,700 lane miles to the regional transportation system (including freeways, arterials, HOV facilities and freeway connectors).[11] Assuming an average lane width of 12 feet and that all new lane miles would consume raw land, these lane miles would consume

[10] Frankham, R., J.D. Ballou and D.A. Briscoe, (2002). *Introduction to conservation genetics*. Cambridge University Press. Cambridge, MA.

[11] SCAG. (2003). Regional Demand Travel Model.

approximately 9,800 acres. However, some lane additions would utilize re-striping and minimize additional right-of-way such that the actual acreage affected is unknown but would likely be less than 9,800 acres.

The full implementation of the Maglev projects would involve the construction of 275 route miles. SCAG expects the proposed goods movement enhancement projects to consist of approximately 140 center lane miles of new facilities. The precise routes, and the number and width of lanes is not yet determined. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width. Along with transit routes, these projects and the associated stations and other maintenance structures could also potentially disrupt biological resources.

Where entirely new roadways would be constructed, there would be a high potential for a significant barrier effect. Conversely, where the project involves only an addition of lanes to an existing roadway, the barrier impact would likely not be significant because the existing roadway has already formed a barrier and the new lanes would slightly increase the existing barrier effect.

Table 3.7-9, below, provides the acreage of natural vegetation (and thus potential habitat) occurring with in 0.25 miles from a highway, transit or freight rail project. A much smaller area would actually be affected. The 0.25 mile zone on either side of the transportation projects was used to capture the effects that extend beyond the road itself, including changes in light, temperature, noise, fire regime, risk of predation and spread of invasive species. The intersections of regional transportation projects and vegetation communities are shown in Figure 3.7-1 in the Figure Chapter at the end of this document (The Maglev, goods movement enhancement, and arterial project alignments are not shown, as they are not developed to the point of analysis. However they would contribute to the significant impact on habitat fragmentation.)

Table 3.7-9: Natural Vegetation Acreage Occurring Within 0.25 miles of a Freeway, Transit, or Freight Rail Project

Vegetation Type	2004 RTP (highways, transit and freight rail)	No Project
Chaparral	20,400	6,600
Conifer Forests and Woodlands	3,300	1,700
Desert Dunes	-	-
Grassland	9,200	500
Hardwood Forests and Woodlands	100	100
Riparian Forest and Scrub	4,500	1,900
Scrub	80,100	16,400

Source: SCAG Analysis. (2003).
UCSB. (1999). GAP Analysis. (Best and most recent regional data available).

Mitigation Measures

MM 3.7-2a: Individual transportation projects included in the 2004 RTP shall conduct site-specific analyses of opportunities to preserve or improve habitat linkages with areas on and off-site. Mitigation banking (opportunities to purchase, maintain, and/or restore offsite habitat) is one opportunity that project proponents and jurisdictions may pursue.

MM 3.7-2b: Each transportation project shall provide wildlife crossings/access at locations useful and appropriate for the species of concern.

MM 3.7-2c: Individual transportation projects shall include analysis of wildlife corridors during project planning. Impacts to these corridors shall be avoided and/or minimized.

MM 3.7-2d: Each transportation project included in the Plan shall use wildlife fencing where appropriate to minimize the probability of wildlife injury due to direct interaction between wildlife and roads. Inclusion of this mitigation measure shall be considered on a case-by-case basis, as use of wildlife fencing could further increase the effects of habitat fragmentation and isolation for many species.

Significance After Mitigation

Route planning to minimize habitat fragmentation impacts, wildlife crossings, on- and off-site habitat restoration and linkages would all reduce the impacts of habitat fragmentation, isolation, and direct injury to wildlife due to transportation projects. For some species, implementation of MM 3.7-2d would increase the degree of habitat fragmentation. At a regional scale, the fragmentation of habitat due to the large scale of the 2004 RTP would not be fully avoided or mitigated. The impact would remain **significant**.

Impact 3.7-3: The 2004 RTP includes new transportation facilities that would potentially increase near-road human disturbances such as litter, trampling, light pollution and road noise in previously relatively inaccessible and undisturbed natural areas.

Many wild animals are negatively affected by such disturbances and will avoid or vacate areas where these factors become prevalent. Such losses might shift species abundance favoring more tolerable species over more sensitive species near well-used roadways. Often the more tolerable species is a non-native pest species and the species that vacate are more desirable native species. In some cases, the animals affected are of special concern.

Table 3.7-9 provides estimates of the extent of potential increases in near-road human disturbances from the distribution and extent of proposed transportation facilities in naturally vegetated lands. These acreage calculations represent the amount of each vegetation community that occurs within 0.25 miles of a 2004 RTP project. A much smaller area would actually be affected. The 0.25 mile zone on either side of the transportation projects was used to capture the effects that extend beyond the road itself, including changes in light, temperature, noise, fire regime, risk of predation and spread of invasive species.

The 2004 RTP would add approximately 6,700 lane miles to the regional transportation system (including freeways, arterials, HOV facilities and freeway connectors)[12] in Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. The Maglev projects would involve the construction of 275 miles of elevated track. Transit routes (included in the calculation illustrated in Table 3.7-9) and their associated stations and other infrastructure would add to the affected acreage. The goods movement enhancement projects are expected to consist of 140 centerline miles. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width. It is expected that these projects would contribute to the overall significant impact. The alignments of these projects are not developed to the point that analysis of the vegetation communities can be estimated directly. Site-specific analyses would be necessary once the alignments for these projects are developed.

Overall, the impact would be significant.

Mitigation Measures

MM 3.7-3a: Individual transportation projects shall minimize vehicular accessibility to areas beyond the actual transportation surface. This can be accomplished through fencing and signage.

MM 3.7-3b: Each project shall establish litter control programs in appropriate areas, such as trash receptacles at road turnouts and view points.

MM 3.7-3c: Each project shall use road noise minimization methods, such as brush and tree planting, at heavy noise-producing transportation areas that might affect wildlife. Native vegetation should be used.

Significance After Mitigation

In many cases, the mitigation measures outlined above would avoid or minimize impacts to wildlife. However, at the regional scale, additional transportation projects would increase wildlife disturbance and the impact would remain **significant.**

Impact 3.7-4: The 2004 RTP projects would potentially damage natural vegetation and other habitat components as a result of trampling or off-road machinery during the construction phases for these projects. **Direct fatalities to wildlife would also potentially occur.**

Trampling or driving over areas with native vegetation can not only destroy existing vegetation and cause short-term disruptions to associated wildlife uses, but it can also result in soil

12 *Ibid.*

hardening. Soil hardening often causes a longer-term change in species composition, with non-native invasive species often displacing more valuable native vegetation. Table 3.7-8 provides estimates of the natural vegetation occurring within 150 feet of a freeway, transit or freight rail project. Unmitigated, construction equipment has the potential to directly kill wildlife.

The 2004 RTP would add approximately 6,700 lane miles to the regional transportation system (including freeways, arterials, HOV facilities and freeway connectors).[13] The Maglev projects would involve the construction of 275 route miles, along with associated stations and other maintenance structures that could also potentially disrupt biological resources. The goods movement enhancement projects are expected to consist of 140 centerline miles. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width. Construction of these lane miles would contribute to the impact described above.

Construction activities are more likely to have significant effects with greater duration or if occurring over a large area of natural vegetation. These effects are also more likely to be significant when the disruption affects habitat of special status species. Soil hardening and vegetation losses can also increase erosion, causing the siltation effects described in Impact 3.7-7. Timing of the activity would also be important in situations where a critical life stage of an animal is affected (e.g., bird nesting).

Site specific analysis would be required to identify and minimize this impact for each individual project included in the 2004 RTP. However, at the regional scale, this impact would be significant.

Mitigation Measures

MM 3.7-4a: Each project shall be preceded by pre-construction monitoring to ensure no sensitive species' habitat would be unnecessarily destroyed. All discovered sensitive species habitat shall be avoided where feasible, or disturbance shall be minimized.

MM 3.7-4b: Each project shall schedule work to avoid critical life stages (e.g. nesting) of species of concern.

MM 3.7-4c: Each project shall fence and/or mark sensitive habitat to prevent unnecessary machinery or foot traffic during construction activities.

MM 3.7-4d: When removal and/or damage to sensitive species habitat is unavoidable during construction, each project shall replant any disturbed natural areas with appropriate native vegetation following the completion of construction activities.

[13] *Ibid.*

Significance After Mitigation

Full implementation of each of these mitigation measures would avoid and/or minimize the construction impacts to **less than significant** levels.

Impact 3.7-5: The 2004 RTP projects would potentially create noise, smoke, lights and/or other disturbances to biological resources during construction phases for these projects.

Construction activities have the potential to negatively affect animal behavior that may result in harm to an individual or population (e.g., causing a nesting failure of a sensitive bird). If the animal is a special status species, and the effect is likely, the potential for a significant impact is increased. Project-level potential impacts and appropriate mitigation measures would need to be identified on a project-by-project basis. At the regional programmatic level, this would be a significant impact.

Mitigation Measures

MM 3.7-5a: Individual projects shall avoid and/or minimize construction activities that have the potential to expose species to noise, smoke, or other disturbances. Pre-construction surveys shall be conducted as appropriate to determine the presence of any species that would need to be protected from such an impact.

MM 3.7-5b: Individual projects shall be scheduled to avoid construction during critical life stages or sensitive seasons (e.g. the nesting season).

Significance After Mitigation

Avoidance and minimization of impacts during construction, with special consideration for critical life stages and seasons of special status species would not reduce this impact to less than significant. The impact remains **significant**.

The operational impacts associated with transportation projects (i.e. those impacts not limited to the period of construction) are discussed in Impact 3.7-3 above.

Impact 3.7-6: The 2004 RTP includes projects that would potentially displace riparian or wetland habitat.

The significance of this impact would depend on the amount and kind of habitat removed. Removal of large riparian trees, for example, can especially reduce stream shading and increase temperatures. Removal of riparian shrubs or grasses can increase erosion and cause siltation impacts discussed below. Removal of aquatic vegetation such as rushes, cattails, or sedges can remove valuable aquatic food sources, spawning or cover habitat, and decrease the water

resource's ability to recycle nutrients. Table 3.7-8 estimates that approximately 520 acres of riparian forest and scrub occur within 150 feet of a freeway, transit, or freight rail project in the 2004 RTP. Impacts to water quality are discussed in Section 3.12 Water Resources.

Approximately 130 acres of NWI mapped wetlands occur within 150 feet of a freeway, transit or freight rail project included in the 2004 RTP (Table 3.7-10 below and Figure 3.7-2 in the map

Table 3.7-10: Wetland Acreage Occurring Within 150 feet of a Freeway, Transit, or Freight Rail Project

2004 RTP (highways, transit and freight rail)	No Project
130	20

Source: SCAG Analysis. (2003).
U.S. Fish and Wildlife Service. (1998). *National Wetlands Inventory*. (Most recent regional data available).

section at the end of this document). Some small-scale wetlands, such as vernal pools, that are not included on the NWI map could also occur near planned transportation projects. Lane additions achieved through re-striping would have significantly less or no impact compared to lane additions and new roadways. At the regional level, the area of wetlands adjacent to 2004 RTP projects provides a good measure of the potential direct impacts.

Additional riparian habitat and wetlands would likely be impacted by the planned 275 miles of Maglev projects and the associated stations and maintenance buildings, arterial, and goods movement enhancement projects. SCAG expects the proposed goods movement enhancement projects to consist of approximately 140 center lane miles of new facilities. The precise routes, and the number and width of lanes is not yet determined. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width, and arterial projects would involve the construction of 3,300 lane miles, though some of these lane miles may be achieved through re-striping and would not consume additional land. The alignments of these projects are not developed to the point that analysis of the impacts to these resources can be estimated directly. It is expected that the impacts due to Maglev, arterials, and the goods movement enhancement projects would contribute to the overall significant impact. Site specific analyses would be necessary once the alignments for these projects are developed.

Due to these potential results, the 2004 RTP would substantially affect riparian and wetland habitat. This impact would be **significant**.

Mitigation Measures

MM 3.7-6a: Construction through or adjacent to wetlands or riparian areas shall be avoided where feasible through route-planning.

MM 3.7-6b: Each transportation project shall avoid removal of wetland or riparian vegetation. Specific vegetation that is not to be removed shall be so marked during construction. Riparian vegetation removal shall be minimized.

MM 3.7-6c: Each transportation project shall replace any disturbed wetland, riparian or aquatic habitat, either on-site or at a suitable off-site location at ratios to ensure no net loss.

MM 3.7-6d: When individual projects include unavoidable losses of riparian or aquatic habitat, adjacent or nearby riparian or aquatic habitat shall be enhanced (e.g. through removal of non-native invasive wetland species and replacement with more ecologically valuable native species).

Significance After Mitigation

The impact to wetlands and riparian areas would remain **significant**.

Impact 3.7-7: The 2004 RTP would potentially increase siltation of streams and other water resources from exposures of erodible soils during construction activities.

Excessive siltation can significantly degrade habitat for fish and other aquatic organisms. Heavy sediment deposition can bury slow-moving or sessile bottom-dwelling organisms, fish eggs and larval forms of many aquatic organisms. These losses are not only of direct concern, but also represent a loss of food sources for larger fishes and other organisms, such as birds and mammals, that are not directly affected by sediments. Increased sediment can also decrease light penetration for aquatic plant production and increase water temperature from greater insulation. Higher water temperatures can affect aquatic organisms through direct stress of temperature-sensitive organisms (e.g., steelhead require cold water streams), and by increasing nitrate productivity which can exacerbate eutrophication if the sediments contain or are accompanied by excessive nutrients (i.e., algal blooms).

The degree of this impact would depend on several factors including the following:

- *Length of occurrence.* The longer the period of sedimentation, the greater the potential for significance.
- *Timing of occurrence*. The effect would be of greater significance during particularly sensitive times of year, such as during fish spawning seasons when the eggs and larvae which are particularly sensitive to siltation would be present; and,
- *Significance of Resource.* The effect would be of greater significance where a special status species might be affected, such as near a steelhead spawning stream.

This impact would be significant.

Mitigation Measures

MM 3.7-7a: Individual projects near water resources shall implement Best Management Practices (BMPs) at construction sites to minimize erosion and sediment transport from the area. BMPs

include encouraging growth of vegetation in disturbed areas, using straw bales or other silt-catching devices, and using settling basins to minimize soil transport. A more detailed description of BMPs is provided in Section 3.12 Water Resources.

MM 3.7-7b: Individual projects shall schedule construction activities to avoid sensitive times for biological resources (e.g. steelhead spawning periods during the winter and spring) and to avoid the rainy season when erosion and sediment transport is increased.

Significance After Mitigation

Full implementation of each of these mitigation measures would not avoid the siltation impacts. The impact remains **significant**.

Impact 3.7-8: Implementation of the 2004 RTP would not conflict with any provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan (NCCP).

Planned projects in Riverside County are included as "Covered Activities" in the adopted Riverside County Multiple Species Habitat Conservation Plan. The adopted Natural Community Conservation Plans in Orange County are not in conflict with any of the projects included in the 2004 RTP, including the extension of SR-241 which is accounted for in the Southern Orange County NCCP conceptual reserve design alternatives (not yet adopted). The impact is less than significant.

Mitigation Measures

The 2004 RTP is not in conflict with any adopted Habitat Conservation Plan or Natural Communities Conservation Plan. No mitigation measures are necessary.

Significance After Mitigation

The impact is **less than significant**.

Cumulative Impacts

A cumulative impact consists of an impact which is created as a result of the combination of the 2004 RTP together with other projects causing related impacts.

Cumulative Impacts 3.7-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization.

The 2004 RTP's influence on growth potentially contributes to following regional cumulatively considerable impacts (as described in Impacts 3.7-1 through 3.7-7 above):

- displacement of natural vegetation,
- damage to sensitive species habitat,
- habitat fragmentation,
- impacts to riparian and wetland habitats,
- construction and operational disturbances, and
- siltation.

The amount of new urbanized acreage (consuming previously vacant land) would be on the order of hundreds of thousands of acres. This degree of urban development is reasonably foreseeable; however, to assign this future development to precise locations would be speculative, such that it cannot be estimated which natural vegetation communities would be affected. Despite the inability to predict the acreage of each habitat type that may be affected, it is reasonable to expect that this future urban development would contribute to the same types of impacts detailed in Impacts 3.7-1 through 3.7-8 above.

These indirect impacts on biological resources are associated with population, employment, and household growth forecast by SCAG, and they are considered a significant cumulative impact.

Mitigation Measures

The cumulative impacts to biological resources, due to the forecast urban development associated with the 2004 RTP, would be mitigated using the same measures detailed for Impacts 3.7-1 through 3.7-8, in addition to the following measure.

MM 3.7-9a: Future impacts to biological resources shall be minimized through cooperation, information sharing, and program development during the update of the Open Space and Conservation chapter of SCAG's *Regional Comprehensive Plan and Guide* and through SCAG's Energy and Environment Committee. SCAG shall consult with the resource agencies, such as U.S. Fish and Wildlife Service and California Department of Fish and Game during this update process.

Significance After Mitigation

The impacts to biological resources due to regional growth would be reduced through application of the mitigation measures; however, the 2004 RTP's accommodation of approximately 6 million people in the SCAG region by 2030 would contribute to cumulative impacts. Implementation of the 2004 RTP would have a cumulatively considerable contribution to urbanization, and, thus, the impact would remain **significant**.

Comparison with the No Project

In the No Project alternative, the population of the SCAG region grows by 6 million people, however no regional transportation investments are made above the existing programmed projects. The population distribution follows past trends, uninfluenced by additional transportation investments.

Direct Impacts

Under the No Project alternative, there would be no new transportation projects (beyond those projects that would occur regardless of adoption of the Plan) intersecting sensitive communities, known locations or habitats of special status species, riparian habitats or wetlands in the region. In Tables 3.7-7, 3.7-8, and 3.7-9, the No Project alternative is compared to the 2004 Plan impacts. *The proposed Plan's transportation-related impacts to biological resources would be greater than the No Project alternative*.

Cumulative Impacts

The No Project alternative's cumulative impacts to biological resources due to urban development would be expected to be approximately the same as those of the 2004 RTP. Future urbanization of approximately the same magnitude as the Plan could be expected to impact natural vegetation and habitat, and other biological resources similarly. *The No Project alternative's cumulative impacts to biology would be approximately the same as those of the 2004 RTP.*

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3.8 CULTURAL RESOURCES

INTRODUCTION

This section describes the cultural resources in the SCAG region, discusses the potential impacts of the RTP on these resources, identifies mitigation measures for the impacts, and evaluates the residual impacts.

ENVIRONMENTAL SETTING

The environmental setting describes the paleontological, archeological, and historic resources of the SCAG region.

Paleontological Resources

Paleontological resources are fossilized remains of non-human organisms that lived in the region in the geologic past. Paleontological sites and fossils are non-renewable resources that are important in our understanding of the prehistory and the geologic development of southern California. Many paleontological sites include remains of species that are now extinct. Paleontological sites are predominantly found in sedimentary rock deposits, and most of the Los Angeles Basin is composed of these sedimentary deposits. Paleontological resources are most easily found in areas that have been uplifted and eroded, and they can be found anywhere that subsurface excavation is being carried out. Ancient marine fossils have been found both in the Santa Monica Mountains, particularly in exposed canyon areas, streambeds, along road cuts, and beneath the streets of Los Angeles during storm drain and subway construction.

The following types of paleontological resources are known to exist in the SCAG region:

- True Fossils: Lithified or replaced remains of plants and animals preserved in a rock matrix (e.g., microfossils, shells, animal bones and skeletons, and whole tree trunks);
- Trace Fossils: Molds, casts, tracks, trails and burrow impressions made in soft clays and muds which subsequently were turned to stone, preserving the images of past life (e.g., shells, footprints, leaf prints, and worm tubes);
- Breas: Seeps of natural petroleum that trapped extinct animals and preserved and fossilized their remains.

Both marine and land vertebrate and invertebrate fossils are found in the SCAG region.[1]

[1] Bedrossian T. L. (1975). Vertebrate fossils and the history of animals with backbones. *California Geology, 28(11)*, 243-259.

Fossils and their Associated Formations

Geologic formations are the matrix in which most fossils are found. These formations are different from modern soils and cannot be correlated with soil maps, which depict a thin veneer of surface soils. Geologic formations form complex relationships below the surface and may range in thickness from a few feet to hundreds of thousands of feet. Geologic maps (available through the U.S. Geological Survey (USGS) and the California Geological Survey (CGS)) show the surface expression of geologic formations along with other geologic features such as faults, folds, and landslides. Although sedimentary formations were initially deposited one atop the other over time the layers have been squeezed, tilted, folded, cut by faults and vertically and horizontally displaced, so that today, any one rock unit does not usually extend in a simple horizontal layer. If a sensitive formation bearing fossils can be found at the surface in an outcrop, that same formation may extend many feet down into the ground and also extend for miles just below the surface. Thus, predicting which areas are paleontologically sensitive is difficult.

Paleontologists consider all vertebrate fossils to be of significance. Fossils of other types are considered significant if they represent a new record, new species, an oldest occurring species, the most complete specimen of its kind, a rare species worldwide, or a species helpful in the dating of formations.

Fossil bearing sedimentary formations and crystalline basement rocks (metamorphic & plutonic) overlain by sedimentary and volcanic rocks are prevalent throughout southern California. Although the exact locations of these formations are considered proprietary to help prevent the removal or destruction of these important, non-renewable resources, Table 3.8-1 identifies the general location of some of the more significant fossil localities for the SCAG region.

Archaeological Resources

Archaeological resources are the physical remains of past human activity, and humans have occupied southern California for thousands of years. The SCAG region is rich in archaeological resources that range from the early prehistoric period to the historic period. As of October 1999, over 33,000 archaeological or historic locations have been identified in the SCAG region. They are distributed in the region as shown in Table 3.8-2. The location of known archaeological sites is confidential to help prevent scavenging of artifacts. Detailed information, especially their location, is considered proprietary by State law. Therefore, Table 3.8-2 lists these resources only by county.

Due to the proprietary nature of archaeological information, the exact location of most of these locales cannot be discussed. However, some of the sites have been made public in county, regional, state, and federal parks, or listed on public registers. These include:

- The site of the Puvunga Indian Village (NR) Los Angeles County
- Vasquez Rocks (NR) Los Angeles County
- The Black Star Canyon Indian Village Site (CHL-217) Orange County

Table 3.8-1: Significant Fossil Localities in the SCAG Region

Location	Fossil Type	Formations
Octillo Area (Shell Canyon, Coyote Mountains, Painted Gorge, Yuma Buttes)	Invertebrates	Imperial
Plaster City	Freshwater invertebrates	Lake Cahuilla Beds
La Brea Tar Pits	>500,000 specimens, >200 types of animals	
Palos Verdes Peninsula	Mastadon, mammoth, horse, camel, sloth	Palos Verdes Sand
Palos Verdes Peninsula	Grey whale	San Pedro
Palos Verdes Peninsula	Fish, birds, sea lion, plants, baleen whale, horse, sloth, sea otter, mammoth, mastodon, bison, camel, tapir	Monterey Shale
Palos Verdes Peninsula	Dolphin	Monterey Shale
Santa Monica Mountains (Topanga Canyon)	Cypraeid gastropod	Topanga
Santa Monica Mountains (Old Topanga Canyon Road, Piuma Road)	Numerous Fossils	Topanga
Mint Canyon	Oldest hawk in California	Tick Canyon
Mint Canyon	Horse, elephant, camel	Mint Canyon
Puente Hills (Hacienda Heights)	Fish	Puente
Puente Hills (Diamond Bar)	Fish and leaves	Puente
Buena Park (Ralph B. Clark Paleontological Park)	Ice age mammals including Imperial Mommoth	La Habra
Laguna Hills/Dana Point	Baleen whale (largest and most complete skull)	Capistrano
Laguna Hills/Dana Point (Costeau Park)	Terrestrial mammal	Capistrano
San Joaquin Hills, Laguna Niguel	Dolphin	Monterey
Newport Bay East Bluffs	Invertebrates	Palos Verdes Sand
Santa Ana Mountains (Eastern Carriort)	76 Localities with various species	Ladd, Sespe-Vacqueros, Tapanga, Silverado, Santiago, Puente
Santa Ana Mountains (Robinson Ranch/Dove Canyon)	Wood. Leaves, ammonites	Silverado
Santa Ana Mountains (Black Star and Silverado Canyons)	Invertebrates	Ladd
Santa Ana Mountains (Gypsum Canyon)	Invertebrates, shark teeth	Topanga
Loma Linda to Banning (“The Badlands")	Vertebrate fossil remains such as horse, camel and rhinoceros	San Timoteo
Soboba Hot Springs	80 varieties of fossilized chaparral and woodland plant species	Soboba
Lake Elsinore	Plants	Silverado
California Oaks	Horse, coyote, rodents, reptiles, amphibians	Unnamed sandstone
Margarita Creek	Horse fossils	Pauba
Bernasconi Hills	Mammoth, horse, saber toothed cat	Lakeview Hot Springs
Perris	Large oreodonts	Lake Matthews
Temecula (I-15 & I-79)	Vertebrate fossils	Temecula Arkose
Barstow, Rainbow Basin	Horse, camel	Barstow
Cajon Pass	Pleiosaurs	San Francisquito
Cajon Valley	Small mammals	Crowder, Punchbowl
Cady Mountains	Oldest tertiary vertebrates in Mojave	Hector
Badlands east of Barstow	Vertebrates	Manix
Boron Open Pit Mine	Lizards	Kramer Beds
Lava Mountains	Lizards, rodents	Bedrock Spring
Red Rock Canyon	Vertebrates	Dove Spring
Cache Peak	42 taxa including microvertebrates	Bopesta
Hills west of Mojave	23 mammalian taxa including 12 of microinvertebrates	Homed Toad
Lone Pine Road near I-15	Whales	Vaqueros
Calico Mountains	Nonmarine insects, invertebrates	Barstow
Marble Mountains	Trilobites, brachiopods	Latham Shale, Chambless Limestone
Providence Mountains	Trilobites, brachiopods	Latham Shale
Kelso Mountains	Trilobites	Latham Shale
Striped Mountains	Coral and invertebrates	Bird Spring
Soda Mountains	Coral and brachiopods	Bird Spring
Las Posas Hills	Echinoids, small mammals, horse, saber, cat, rhino	Las Posas, Saugas
South Mountain	Small mammals, oreodont	Saugus
Tapo Ranch, Pearson Ranch	Lemurs, carnivores, rhino, monkey	Sespe
Balcom Canyon, Grimes Canyon	Plants, fish, insects	Monterey
Pine Mountain	Invertebrates	Santa Margarita
Rincon Beach	Pine Cones	Pico
Simi Wash	Invertebrates	Las Llajas
Pitas Point	Invertebrates	Santa Barbara

Source: Due to the multiplicity of sources used to prepare this table, sources are included in the Appendices.

Table 3.8-2: Archaeological Site Distribution	
County	**Approximate Number of Archaeological Sites**
Imperial	8,036
Los Angeles	3,103
Orange	1,616
Riverside	7,030
San Bernardino	10,900
Ventura	1,647
SCAG REGION TOTAL	**32,332**

Sources: Southeast Information Center (Imperial County); South Central Coastal Information Center (Los Angeles, Orange, and Ventura Counties); Eastern Information Center (Riverside County); and San Bernardino Archaeological Center (San Bernardino County)

- The Fairview Indian Site (NR) Orange County
- Desert Intaglios (CHL-101) Riverside County
- Site of the Indian Village of Pochea (CHL-104) Riverside County
- Carved Rock (CHL-187) Riverside County
- Painted Rock (CHL-190) Riverside County
- The Hemet Maze (CHL-557) Riverside County
- The Calico "Early Man" Site San Bernardino County
- Anacapa Island Archaeological District (NR) Ventura County

The SCAG region was occupied during both the prehistoric and protohistoric periods; therefore archaeological sites are widespread and numerous. Rock outcrops, river and stream drainages, and coastal strips were often prime locations for Native American village sites or processing camps. These locations now include highly urbanized locations, such as cities, and undeveloped areas of the high desert. Often archaeological sites are covered by three feet or more of topsoil, however it is possible that construction may not disturb the surface soils by more than a foot or two, thereby protecting remains even after an area has been fully urbanized. In 1998, a large undisturbed Native American burial ground, dating to the Protohistoric Period, was exposed during construction at the ARCO Refinery in Los Angeles. The refinery had been there for seventy-five years, yet the burial level was located under three to five feet of flood deposits from the nearby Los Angeles River.

In contrast to archaeological sites, the location of historic sites is open to the general public in such registers as The National Register of Historic Places (National Register or NR), the California Historical Landmarks (CHL), the California Points of Historic Interest, and the State Historic Inventory. In addition, the City of Los Angeles Historic-Cultural Monuments listing is available in print.

Properties are continuously added to each of these historic registers. The CHL is reprinted every ten or so years. The Historic Resources Inventory (HRI) is revised at least twice a year. Points of Historic Interest (PHI) and the National Register are also updated continuously.

Prehistoric Period (Prior to 1542)

The Prehistoric cultural history of the SCAG region can be outlined by the following chronology:[2]

- Early Man Horizon
  Spanning the period from the end of the Pleistocene to approximately 6,000 BC, archaeological resources attributed to this horizon are characterized by large projectile points and scrapers.

- Milling Stone Horizon
  Characterized by the appearance of hand stones and milling stones, this horizon tentatively dates to between 6,000 BC and 1,000 BC. Cultural resources from this period include choppers and scraper planes but generally lack projectile points. Larger projectile points appeared in the in the latter portion of the Milling Stone Horizon.

- Intermediate Horizon
  Dated to between 1,000 BC and AD 750, the Intermediate Horizon represents a transitional period. Cultural resources from the Intermediate Horizon sites contain large stemmed or notched projectile points and portable mortar and pestles.

- Late Prehistoric Horizon
  Extending from AD 750 to Spanish contact in AD 1769, the Late Prehistoric Horizon reflects an increased sophistication and diversity in technology. This is characterized by the presence of small projectile points, which imply the use of the bow and arrow. Additional cultural resources include steatite bowls, asphaltum, grave goods, and elaborate shell ornaments.

Protohistoric Period (1542 to 1769)

Although early Spanish explorers and mission fathers recorded information on the local Native American populations, professional anthropological studies did not begin until the end of the 19th Century after most of the SCAG region Indian groups had been either assimilated by Spanish, Mexican, and American cultures or relocated to reservations.

The SCAG region once was the home to at least eleven distinct Native American groups. These include the Cahuilla, Chumash, Gabrielino, Halchidhoma, Kitanemuk, Luiseno, Mohave, Quechan,

[2] Wallace, W. J. (1955). A suggested chronology for southern California coastal archeology. *Southwestern Journal of Anthropology 11(3),* 214-230.

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 year.

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 Chemehuevi, Fort Mojave, Torres, Cabazon, Augustine, Santa Rosa, Ramona, Pechanga, Soboba, Agua Caliente, Mission Creek, and Morongo. The two reservations in San Bernardino County are the San Manuel and Twenty-nine Palms reservations. No reservations were established in Los Angeles, Ventura, and Orange Counties. It was believed that the local Native American groups in those counties had become extinct.

Historic Resources

Historic resources are classified into three distinct time periods of the region's history: the Spanish Period, the Mexican Period, and the American Period.

Spanish Period (1769-1822)

Exploration of California first occurred in 1540 when a land expedition under the command of Hernando de Alarcon traversed inland along the Colorado River. Two years later, Juan Rodriquez Cabrillo was commissioned by the Spanish government to investigate the western shores of the newly acquired territory. In the following two centuries, little interest was given to California.

By the late 18th Century, European political powers created renewed interest in California. Military "explorers" from Great Britain, France and Russia began investigating the resources along the western shores of the entire North American continent. The Spanish government, realizing that settlement by any of these foreign parties north of Mexico could become a threat, decided it was time to establish their own settlements in California. In 1769, plans were put in place to found a series of forts (presidios) and Catholic missions along the Alta California coast extending as far north as Monterey Bay.

Over the course of the next half-century, four presidios, twenty missions and three towns were established. The forts were located at San Diego, Santa Barbara, Monterey and San Francisco. The towns were founded at Los Angeles (1781), San Jose (1777) and Branciforte (1797), near Santa Cruz. The settlement at Branciforte failed but all the others were successful.

During the early decades of the 19th Century, independence groups sprang up throughout the Spanish Empire. Mexico declared its independence in 1810. This attempt failed, but a second attempt ten years later succeeded. At that time, California was considered a province of Mexico. Throughout the Spanish Period, California remained largely unsettled. Table 3.8-3 lists cultural resources from the Spanish Period.

Table 3.8-3: California Historic Landmarks (CHL) of the Spanish Period (1769-1821)

CHL Number	Site Name	General Location	Year
43	The Zanja	Redlands	1819-1820
95	Guahama Rancheria	Redlands	1810
101	Giant Desert Figures	16 miles N of Blythe	N/A
103	De Anza Camp Site	Southeast of Anza	1774
104	Village of Pochea	Hemet	1774
113	Site of Junipero Serra's Cross	Ventura	1782
114	Old Mission Reservoir	Ventura	1805-1815
114-1	San Buenaventura Aqueduct	Ventura	1805-1815
145	Avila Adobe	Los Angeles	1818
156	Los Angeles Plaza	Los Angeles	1781
157	Mission San Fernando Rey de Espana	Mission Hills	1797
158	Mission San Gabriel Archangel	San Gabriel	1771
161	Site of Mission Vieja	Montebello	1770s
185	Serrano Adobe Site	South of Corona	1824
186	Serrano Tanning Vats	8 miles SE of Corona	1819
187	Carved Rock	8 miles S of Corona	N/A
190	Painted Rock	7 miles S of Corona	N/A
200	Mission San Juan Capistrano	San Juan Capistrano	1776
204	Old Santa Ana	Orange	1769
302	Old Mill	San Marino	1816
310	Mission San Buenaventura	Ventura	1782
350	Mission Purisima Concepcion	South of Winterhaven	1780
363	Centinela Springs	Inglewood	N/A
383	Site of Jose Dolores Sepulveda Adobe	Torrance	1818
451	Ortega-Vigare Adobe	San Gabriel	1792-1805
522	Serra Springs	Los Angeles	1769
556	Rancho San Francisco	Valencia	1804
557	Hemet Maze Stone	Hemet	N/A
568	Hernando de Alarcon Expedition	Andrade	1540
618	Garces-Smith Monument	San Bernardino National Forest	1776
620	Yucaipa Rancheria	Yucaipa	1822
624	Portola Expedition Site	Piru	1769
638	Old Temescal Road	South of Corona	1820
655	Portola Trail Campsite (I)	Los Angeles	1769
659	Stagecoach Inn	Newbury Park	1876
665	Portola Camp Site (II)	Beverly Hills	1769
689	Los Encinos State Historic Park	Encino	1797
727	Portola Expedition Campsite	Santa Paula	1769
753	San Fernando Cemetary	Sylmar	1800s
781	National Old Trails	Needles	1776
787	De Anza Crossing	Riverside	1775, 1776
911	Chatsworth Calera Site	Chatsworth	1800s
921	Mission San Pedro y San Pablo	Northeast of Bard	1781
965	Point Dume	Malibu	1793
977	The Arrowhead	San Bernardino	N/A
984	Casa Rancho San Antonio	Bell Gardens	1810
1008	Yuha Well	Near Seeley	1774

Source: California Department of Parks and Recreation, Office of Historic Preservation. (n.d.). California state historic landmarks listed by county. Retrieved February 4, 2003, from http://ceres.ca.gov/geo_area/counties/lists/landmarks_county.html

Mexican Period (1822-1848)

When Mexico first gained its political independence from Spain, little changed for the citizens of California. The defining event from this time period was the secularization of the Catholic Missions in 1834, following the Act of Secularization of 1833. Over the following sixteen years, all of the former mission lands were granted to secular landowners.

Secularization proved disastrous for the Native Americans who were part of the mission system. In fact, the Native Americans were self sufficient long before the arrival of Spanish domination. The mission system made the indigenous population completely dependent on the missions. When the missions were closed the Indians were left to fend for themselves.

During the two-decade period between the 1830s until 1848, one government after another ruled California. Meanwhile, the United States pushed west across the North American continent. By 1846, a number of Americans had settled in California, often marrying into landed Hispanic families.

Between 1835 and 1846 relations between Mexico and the United States deteriorated. In 1846, a revolt was attempted in Northern California. Although it was quickly thwarted, it planted the seeds for the eventual insurrection that succeeded. Within three weeks, an American naval force appeared off the California coast and formally proclaimed rule over the presidios and coastal towns. On January 13, 1847, Captain John C. Fremont accepted the surrender of Governor Pio Pico and Commander Jose Maria Fores. The United State annexed California by the Treaty of Guadalupe Hildago in 1848, ending the Mexican War and beginning the American Period. Table 3.8-4 lists cultural resources from the Mexican Period.

American Period (1848 - Present)

Shortly after the United State annexed California, gold was discovered in central California, changing the state forever. Within months of the news, droves of foreigners poured into California. At the same time, the cattle industry flourished, causing some rancho owners to become wealthy. However, the legality of the land grants issued by the Spanish and Mexican governments came into question. It took the American courts years to decide each individual case. In the meantime, many of the Mexican landowners lost their great ranchos to the new Americans through marriage, or more often through deceit.

By the time of the American Civil War (1861-1865), Americans were the dominant group in southern California, both politically and economically. Their feelings toward the war were divided, but generally Southern sympathizers outnumbered Northern supporters. During this same decade, a great drought struck southern California, devastating the cattle industry. As a result many of the former cattle ranches were sold off and used for agricultural purposes.

The railroad came to southern California during the 1870's, resulting in the first great land boom. New towns began to spring up along the new rail lines. Places once thought too desolate soon attracted settlers.

Table 3.8-4: California Historic Landmarks (CHL) of the Mexican Period (1822-1848)

CHL Number	Site Name	General Location	Year
42	San Bernardino Asistencia	Redlands	1830
44	Mormon Stockade	San Bernardino	1839
102	Site of Louis Rubidoux House	Rubidoux	1844
115	Olivas Adobe	Ventura	1837, 1849
121	Agua Mensa	Colton	1845
127	Casa de Pio Pico	Whittier	1830's?
144	Church of Los Angeles	Los Angeles	1822
151	Campo de Cahuenga	North Hollywood	1847
152	Dominguez Ranch House	Compton	1826
167	La Mesa Battlefield	Vernon	1847
168	Oak of the Golden dream	Newhall	1842
189	Dana Point	Dana Point	1835
199	Serrano Adobe	El Toro	1842
217	Black Star Canyon Indian Village Site	Near Silverado	1878
224	Site of Third Serrano House	Southeast of Corona	1840's
226	Bernardo Yorba Ranch Site	Yorba Linda	1834
227	Diego Sepulveda Adobe Costa Mesa	Costa Mesa	Late 1820s
301	Site of Lugo Adobe	Los Angeles	1840's
303	Site of Old Rubidoux Grist Mill	Rubidoux	1846-7
360	Tapia Adobe	Cucamonga	1839
362	Romulo Pico Adobe	Mission Hills	1834
368	Hugo Reid Adobe	Arcadia	1839
385	Rio San Gabriel Battlefield	Montebello	1847
490	Cucamonga Rancho Winery	Cucamonga	1839
528	Yucaipa Adobe	Yucaipa	1842
553	Rancho Camulos	2 miles east of Piru	1839
637	Catalina Adobe	Glendale	1830's
920	Casa de San Pedro	San Pedro	1823
942	Site of Rancho Chino Adobe	Chino	1841
944	Site of Fort Romualdo Pacheco	West of Imperial	1822
963	Mojave Road	Northeast of Barstow	1826
978	Rancho los Cerritos	Long Beach	1844
979	Rancho Simi	Simi Valley	1842
1005	Santa Rosa Rancho	Murrietta	1846

Source: California Department of Parks and Recreation, Office of Historic Preservation. (n.d.). California state historic landmarks listed by county. Retrieved February 4, 2003, from http://ceres.ca.gov/geo_area/counties/lists/landmarks_county.html

As a result of new towns in places like the Mojave Desert, exploration for mineral deposits soon produced new strikes in places such as Calico in San Bernardino County in 1881. During the next several decades, many such mining camps were established in the eastern counties, most of these camps remained in existence only for a short time.

In the Twentieth Century the region underwent a metamorphosis from a primarily agricultural region into an urban metropolis. Southern California has attracted and maintained millions of people and employment opportunities and has developed into the second-largest metropolitan region in the country.

The activities and achievements of the recent past have generated many important cultural resources throughout the region. Table 3.8-5 lists cultural resources from the American period.

Table 3.8-5: California Historic Landmarks (CHL) of the American Period (1849 to Present)

CHL Number	Site Name	General Location	Year
20	Parent Orange Tree	Riverside	1870
96	Mormon Road	West of Crestline	1851
112	City of Anaheim	Anaheim	1857
147	Banning Park	Wilmington	1850's
150	Brand Park (Memory Garden)	Los Angeles	1920
159	Pico Hotel	Los Angeles	1869-1870
160	Oldest House in Hollywood	Hollywood	1870's
169	Drum Barracks	Wilmington	1862
170	Hancock Park La Brea	Los Angeles	1916
171	Merced Theater	Los Angeles	1870
172	Pioneer Oil Refinery	Newhall	1870
182	Tumco Mines	5 miles NE of Ogilby	1884
188	Butterfield Stage Station	South of Corona	1858
191	Yorba-Slaughter Adobe	South of Chino	1850-1853
193	Picacho Mines	North of Winterhaven	1852
194	Mountain Springs Stage Station	Mountain Springs	1850's
198	Old Landing	Newport Beach	1870
201	Pioneer House of the Mother Colony	Anaheim	1857
202	Silverado	Silverado	1878
203	Red Hill	Santa Ana	1893
205	Modjeska's Home	Northeast of El Toro	1888
218	Barton's Mound	Irvine	1857
219	Anaheim Landing	Seal Beach	1857
225	Flores Peak	Modjeska Canyon	1857
228	Carbondale	Silverado	1878
235	Casa de San Rafael	Glendale	1875
289	First Home of Pomona College	Pomona	1887
367	Lucky Baldwin's Cottage	Arcadia	1865
372	Adobe de Palomares	Pomona	1881
373	Old Salt Lake	Redondo Beach	1850s
380	Site of Diego Sepulveda Adobe	San Pedro	1854
381	Old Whaling Station	Rancho Palos Verdes	1850's
384	Timms' Point and Landing	San Pedro	1852
386	La Casa de Carrion	La Verne	1864
514	Pomona Power Plant	Claremont	1892
516	Well No. CSO	Newhall	1876
516-2	Mentryville	Newhall	1876
531	Lummis House	Los Angeles	1895
536	Original Building of the University of Southern California	Los Angeles	1880
554	DeMille Studio	Hollywood	1913
567	St. Vicent's Place	Los Angeles	1868
573	Sycamore Grove	West of Devore	1851
576	Santa Fe/Salt Lake Trail	North of San Bernardino	1917
577	Mormon Trail Monument	North of San Bernardino	1851
578	Stoddard-White Monument	North of San Bernardino	1849
579	Daly Road Monument	East of Rim Forest	1870
580	Alamitos 1	Long Beach	1921
590	Lang Station	East of Canyon Country	1876
617	Fort Benson	Colton	1856-1857
619	Holcomb Valley	Northeast of Big Bear	1860
622	Harry Wade Exit Route	Near Baker	1849
632	Old Short Cut	Angeles National Forest	1900
646	Grave of George Carlambo	Whittier	1867
649	Harry Wade Exit Route	30 miles north of Baker	1849

Table 3.8-5: California Historic Landmarks (CHL) of the American Period (1849 to Present) (cont.)

CHL Number	Site Name	General Location	Year
653	The Cascades	San Fernando Valley	1913
656	Bella Union Hotel Site	Los Angeles	1858
664	Heritage House	Compton	1869
668	Lyon Station	Newhall	1855
669	Gov. Stoneman Adobe, Los Robles	San Marino	1880
681	Paradox Hybrid Walnut Tree	Whittier	1907
688	Lyons Station Stagecoach Stop	Newhall	1850s
716	Griffith Ranch	San Fernando	1912
717	Angeles National Forest	La Canada	1892
717	Angeles National Forest	San Bernardino Mountains	1892
718	First International Air Meet	Carson	1910
725	Old Bear Valley Dam	West of Big Bear	1884
729	Old Maizeland School	Buena Park	1868
730	Old Plaza Firehouse	Los Angeles	1884
737	Chimney Rock	Lucerne Valley	1867
738	Corona Founders Monument	Corona	1886
744	Butterfield State Station Site	Los Angeles	1858
749	Saahatpa	Brookside Rest Area	1851
756	Sycamore Tree	4 miles E of Santa Paula	1846
761	Mission Inn	Riverside	1876
774	Searles Lake Borax Discovery	Trona	1862
775	Site of First Water-to-Water Flight	Newport Beach	1912
782	Calico	Near Yermo	1881
789	Site of the Los Angeles Star	Los Angeles	1851
794	McFadden Wharf	Newport Beach	1888
806	Fort Yuma	Winterhaven	1849
808	Camp Salvation	Calexico	1849
822	First Jewish Cemetery	Los Angeles	1854
837	Santa Ana Courthouse	Santa Ana	1900
840	Old Santa Monica Forestry Station	Los Angeles	1887
845	Plank Road	West of Winterhaven	1915?
847	Ventura County Courthouse	Ventura	1913
859	Von Schmidt Boundary	North of Needles	1873
871	The Gamble House	Pasadena	1908
874	Workman Home	Industry	1842
881	Site of Port of Los Angeles Long Wharf	Pacific Palisades	1893
887	Pasadena Playhouse	Pasadena	1924
892	Harvey House	Barstow	1893
894	S.S. Catalina	Lost	1924
912	Glendora Bougainvillea	Glendora	1901
918	Olinda	Brea	1897
919	St. Francis Dam Disaster Site	North of Saugus	1928
933	Site of Llano Colony	Llano	1916?
934	Japanese Detention Center	Arcadia	1942
939	Charley's World of Lost Art	Andrade	1967
939	Old Trapper's Lodge	Woodland Hills	1951
939	Hula Ville	4 miles NW of Yermo	1954
939	Possum Trot	6 miles NW of Hesperia	1955
939	Grandma Prisbrey's Bottle Village	Simi Valley	1956
943	Cornelius and Mercedes Jenson Ranch	Rubidoux	1854
947	Reform School for Juvenile Offenders (F.C. Nelles School)	Whittier	1891
948	Site of Blythe Intake	North of Blythe	1877

Table 3.8-5: California Historic Landmarks (CHL) of the American Period (1849 to Present) (cont.)

CHL Number	Site Name	General Location	Year
950	U.S. Rabb Experimental Station	Fontana	1928
959	Balboa Pavilion	Balboa	1905
960	Los Angeles Memorial Coliseum	Los Angeles	1923
961	Harold Lloyd Estate	Beverly Hills	1929
963-1	Camp Cady	24 miles N of Barstow	1860
966	Adamson House	Malibu	1926
975	El Monte-1st So. Cal. Settlement by U.S. Immigrants	El Monte	1850s
985	Camp Pilot Knob	Felicity	1943
985	Camp Young	28 miles E of Indio	1942
985	Camp Coxcomb	45 miles E of Indio	1942
985	Camp Granite	45 miles E of Indio	1942
985	Camp Iron Mountain	45 miles E of Indio	1942
985	Camp Clipper	37 miles W of Needles	1942
985	Camp Ibis	8 miles E of Needles	1942
988	Pacific Asia Museum	Pasadena	1929
989	Soviet Transpolar Landing Site	San Jacinto	1937
990	Christmas Tree Lane	Pasadena	1920
992	Site of Contractor's General Hospital	Desert Center	1933
993	Watts Towers	Los Angeles	1955
994	A.K. Smiley Public Library	Redlands	1898
996	Union Oil Company Building	Simi Valley	1890
997	Tuna Club of Avalon	Avalon	1898
1004	Old Town Irvine	Irvine	1887
1006	Beale's Cut Stagecoach Pass	Santa Clarita	1862
1009	Ramona Bowl	Hemet	1923
1011	Ennis House	Los Angeles	1924
1014	Long Beach Marine Stadium	Long Beach	1932
1015	Richard Nixon Birthplace	Yorba Linda	1912
1018	Manhattan Beach State Pier	Manhattan Beach	1920
1019	Kimberly Crest	Redlands	1897
1021	Liberty Hill Site	San Pedro	1923
1028	Madonna of the Trail	Upland	1929
1034	Tecolote Rancho	Holtville	1907

Source: California Department of Parks and Recreation, Office of Historic Preservation. (n.d.) California state historic landmarks listed by county. Retrieved February 4, 2003, from http://ceres.ca.gov/geo_area/counties/lists/landmarks_county.html

Table 7.6 in the Technical Appendices lists the sites in the SCAG region listed on the National Register of Historic Places.

REGULATORY SETTING

Cultural resources in the six-county SCAG region include archaeological sites of prehistoric or historic origin, fossil deposits of paleontological importance, and standing structures with national, state, or local significance. These resources are regulated at the federal, state and local levels as discussed below.

Federal Agencies and Regulations

National Environmental Policy Act (NEPA)

The NEPA of 1970 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. NEPA addresses a wide range of environmental issues including the documentation of, and potential impacts to, cultural and historic properties. Compliance includes an on-site survey by a qualified archaeologist prior to construction. A report of findings may be submitted to the State Historic Preservation Office for further consultation.

National Historic Preservation Act (NHPA)

NHPA established laws for historic resources to "preserve important historic, cultural, and natural aspects of our national heritage, and to maintain, wherever possible, an environment that supports diversity and a variety of individual choice." The Antiquities Act of 1966, which aimed to protect important historic and archaeological sites, initiated historic preservation legislation. It established a system of permits for conducting archaeological studies on federal land, as well as setting penalties for noncompliance. This permit process controls the disturbance that may be caused to archaeological sites. New permits are currently issued under the Archeological Resources Protection Act (ARPA) of 1979. The purpose of ARPA is to enhance preservation and protection of archaeological resources on public and Native American lands.

The Historic Sites Act of 1935 declared that it is national policy to "Preserve for public use historic sites, buildings, and objects of national significance." The NHPA expanded the scope to include important state and local resources. Provisions of NHPA establish the National Register maintained by the National Park Service, advisory councils on Historic Preservation, State Historic Preservation Offices, and grants-in-aid programs. Section 106 of the NHPA requires all federal agencies to consult the Advisory Council before continuing any activity affecting a property listed on or eligible for listing on the National Register. The Advisory Council has developed regulations for Section 106, to encourage coordination of agency cultural resource compliance requirements under Executive Order 11593 and NEPA with those of Section 106.

American Indian Religious Freedom Act and Native American Graves and Repatriation Act

The American Indian Religious Freedom Act recognizes that Native American religious practices, sacred sites, and sacred objects have not been properly protected under other statutes. It establishes as national policy that traditional practices and beliefs, sites (including right of access), and the use of sacred objects shall be protected and preserved.

Additionally, Native American remains are protected by the Native American Graves and Repatriation Act of 1990. Under this legislation, the excavation and disposition of remains is supervised by a designated "most likely descendent" as determined by the Native American Heritage Commission (see discussion of State Regulations below).

State Agencies and Regulations

California Environmental Quality Act (CEQA)

Certain portions of the California law are specifically concerned with the protection of cultural resources and archaeological human remains located on public or private land. The basic policy statements at the State level on which cultural resource protective regulations are based are contained in CEQA, adopted in 1970, the California Coastal Act of 1976, the Coastal Commission Archaeological Guidelines, State Office of Historic Preservation Guidelines for cultural resource surveys and data recovery programs, and Native American Heritage Commission guidelines for cultural resources identification and protection. Human remains of an archaeological nature are protected under CEQA and State Health and Safety Code. The CEQA Guidelines include guidance on significance criteria and mitigation measures for archaeological sites.

California Coastal Act (CCA)

The CCA (Public Resources Code, Sections 30000 et.seq.) includes protection of archeological resources into LCPs that regulate land uses within the coastal zone.

Other Provisions of Public Resources Code (PRC)

The State's cultural resources are regulated by the PRC. The PRC defines cultural preserves as "distinct areas of outstanding cultural interest" located in the State Park System for the protection of sites, buildings, or zones, which represent significant places or events in the flow of human experience in California. A historic resource includes, but is not limited to, "any object, building or structure, site, area, or place which is historically or archaeologically significant," or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Section 5097.5 of the PRC specifically defines "unauthorized excavation, removal, destruction, etc., of archaeological, paleontological or historical feature, on "Public Lands," as a misdemeanor.

The California Administrative Code includes the following regulations, Title 14, State Division of Beaches and Parks, Section 4307: Archaeological Features: No person shall remove, injure, disfigure, deface, or destroy any object of paleontological, archaeological or historical interest or value.

The California Penal Code, Title 14, part 1, Section 622 1/2 provides that injury, etc. to an object of archaeological or historical interest is punishable as a misdemeanor.

State Office of Historic Preservation (SHPO)

SHPO implements preservation laws regarding historic resources, and is responsible for the California Historic Resources Inventory (CHRI), which uses the National Criteria for listing resources significant at the national, state, and local level.

Native American Heritage Commission (NAHC)

Section 50907.9 of the PRC and Section 7050 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.

Local Agencies and Regulations

In addition to federal and state regulations, cities and counties in the SCAG region may also provide regulatory protection and advisement regarding cultural resources. For instance, many cities and counties fund agencies designated to identify and protect resources. Some afford local ordinances that identify goals and standards for maintenance and protection of such resources. An example is the City of Los Angles, which established a Cultural Heritage Commission that maintains an ongoing listing of historic-cultural monuments within the city. In 1987, the Orange County Board of Supervisors established policy and procedures for cultural resource management in unincorporated portions of the county. Some local general plans provide conservation elements or other elements directly related to cultural resources located within their jurisdiction.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts of implementation of the proposed Plan on paleontological, archeological, and historic resources in the SCAG region.

Comparison with the No Project

The analysis of cultural resources includes a comparison of the expected future conditions with the proposed Plan to the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the effects of the 2004 RTP.

Determination of Significance

The methodology for determining the significance of these impacts compares the future Plan conditions to the existing setting, as required in CEQA Guidelines Section 15126.2(a). The known archaeological and historical resources located within the SCAG region were evaluated using the criteria set forth by the Office of Historic Preservation, the California Register of Historic Resources, and CEQA Guidelines. A GIS map depicting state and federally recognized historic resources was compared to a map of proposed projects and associated growth in order to determine potential impacts to these resources. The research analysis was limited to state and federally recognized historic resources and landmarks, and does not include landmarks of local

level importance. The location of known archaeological sites is considered confidential information for archaeological scholars only and is not included in this document.

In evaluating the presence of paleontological materials within the SCAG region, USGS and the CGS were consulted. The following institutions were also consulted:

- Imperial County: Imperial County Museum; San Diego Museum of Natural History
- Los Angeles County: Los Angeles County Museum of Natural History
- Orange County: Historical/Cultural Programs Section of Orange County Harbors, Beaches and Parks department; Los Angeles County Museum of Natural History
- Riverside County: University of California Riverside
- San Bernardino County: San Bernardino County Museum of Natural History
- Ventura County: Los Angeles County Museum of Natural History

These resources were used to evaluate expected impact to the six-county SCAG region due to transportation developments and associated growth.

SIGNIFICANCE CRITERIA

In accordance with CEQA Guidelines, including *Section 15064.5 Determining the Significance of Impacts on Historical and Unique Archaeological Resources* and *Appendix G*, implementation of the projects and policies in the Plan would have a significant impact to cultural resources if the Plan would:

- Cause a substantial adverse change in the significance of a historical resource, defined as physical demolition, destruction, relocation or alternation of the resource or its immediate surroundings such that the significance of an historic would be materially impaired (Guidelines § 15064.5);
- Cause a substantial adverse change in the significance of a unique archaeological resource;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

IMPACTS AND MITIGATION MEASURES

All of the counties within the SCAG region contain archaeological localities and are rich with fossil bearing sedimentary formations. All areas within the region have the potential for yielding, as yet undiscovered, archaeological, and paleontological resources and human remains. As of February

2003, over 32,000 archaeological and historic locations have been identified in the SCAG region. Each of these sites is documented at the Archaeological Information Center, which holds location information on archaeological sites for each region in California. The precise location of archaeological sites is considered to be confidential, and professional archaeologists are prohibited from disclosing this information. Paleontological sites are also numerous in the SCAG region. Although the location of paleontological sites is not considered confidential, it is considered privileged, and therefore the exact locations are not disclosed here. The development of new transportation facilities may affect archaeological and paleontological resources, primarily through the disturbance of buried resources. Frequently, these resources are previously unidentified. Therefore, any excavation in previously undisturbed soil has the potential to impact archaeological and paleontological resources.

The development of new transportation facilities may affect historic architectural resources (structures 50 years or older), either through direct affects to buildings within the proposed project area, or through indirect affects to the area surrounding a resource if it creates a visually incompatible structure adjacent to a historic structure. Impacts to historic resources fall into three categories: 1) direct disturbance of buried resources, 2) direct impact or alternation of structures, and 3) indirect impacts to structures, such as vibration and corrosive air contaminants, and creation of a visually incompatible environment. All counties in the SCAG region contain a large number of historic properties and historic residential districts (see Table 3.8-6); therefore the potential for impacts to historic properties is significant. Improvements within existing rights-of-way are less likely to affect historical architectural resources. However, new highway segments through historic districts would constitute a significant impact. Also, reducing buffer zones between transportation corridors and reduction of historic resources through lane widening could cause significant impacts.

Table 3.8-6: Number of Landmarks per County

County	State Historic Landmarks	National Register
Imperial	**14**	**10**
Los Angeles	**101**	**385**
Orange	**25**	**104**
Riverside	**27**	**52**
San Bernardino	**41**	**52**
Ventura	**14**	**33**

Source: California Department of Parks and Recreation, Office of Historic Preservation. (n.d.) California state historic landmarks listed by county. Retrieved February 4, 2003, from http://ceres.ca.gov/geo_area/counties/lists/landmarks_county.html

Source: National Register of Historic Places. (2003). National register information system [Database]. Retrieved February 11, 2003, from http://www.nr.nps.gov/

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through its Intergovernmental Review Process.

Historic Resource Impacts

Impact 3.8-1: Development of highway, arterial and transit projects would potentially impact historic resources.

Types of projects that may impact historic resources include expressway projects that entail the development of new lanes and in some instances acquisition of new right-of-ways, and arterials and interchange projects which entail the development of new lanes and right-of-way acquisition.

In general, for new construction, the evaluation of the potential for indirect and direct impacts to historic resources should extend at least 1,000 feet from new construction. This should be applied in evaluating impacts during project level analysis. Undiscovered historic resources, refers to those structures that exist whose historic value has not previously been assessed or recognized. In more remote areas, structures of historic importance may not be currently listed on state or federal registers. In these instances, it is important to treat these structures as historic resources, if they meet the criteria that would make them eligible for the National Register or California State Historic Landmarks.

Improvements proposed in existing “rights of way,” such as HOV lanes, HOT lanes, new bus-ways and goods movement capacity enhancement projects, mixed flow lanes, and “right of way” maintenance (such as pot-hole repair) would have limited potential to impact historic resources. Several of the planned projects include the construction of additional lanes and highway arterials. These projects could potentially impact the physical and aesthetic integrity of historic buildings and communities, as well as negatively impact the structures through increased levels of corrosive air contaminates which may damage the exterior of historic buildings.

Mitigation Measures

All mitigation measures should be included in project-level analysis as appropriate. The project proponent or local jurisdiction shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures.

MM 3.8-1a: As part of the appropriate environmental review of individual projects, the project implementation agencies shall identify potential impacts to historic resources. A record search at the appropriate Information Center shall be conducted to determine whether the project area has been previously surveyed and whether resources were identified.

MM 3.8-1b: As necessary, prior to construction activities, the project implementation agencies shall obtain a qualified architectural historian to conduct historic architectural surveys as recommended by the Archaeological Information Center. In the event the records indicate that no previous survey has been conducted, the Information Center will make a recommendation on whether a survey is warranted based on the sensitivity of the project area for cultural resources within 1,000 feet of the improvement.

MM 3.8-1c: The project implementation agencies shall comply with Section 106 of the NHPA if federal funding or approval is required. 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. This mitigation measure may include, but are not limited to the following:

- The project implementation agencies shall carry out the maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of any impacted historic resource, which shall be conducted in a manner consistent with the Secretary of the Interior's Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings. Weeks and Grimmer (1995).

In some instances, the following mitigation measure may be appropriate in lieu of the previous mitigation measure:

MM 3.8-1d: The project implementation agencies shall secure a qualified environmental agency and/or architectural historian, or other such qualified person to document any significant historical resource(s), by way of historic narrative, photographs, or architectural drawings, as mitigation for the effects of demolition of a resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur.

Significance After Mitigation

Due to the size and potentially large number of historic properties listed that could be disturbed as a result of the combined projects, this impact would remain a potentially **significant** impact to historic resources.

Archaeological Impacts

Impact 3.8-2: Construction activities involving excavation and earthmoving would potentially encounter archaeological resources.

The OHP defines an archaeological "site" as consisting of three or more related resources discovered in one locality. In the event of archaeological and paleontological discovery, the resources are collected, documented and curated at an educational institution, such as a school or a museum.

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.
- It has yielded, or may be likely to yield, information important to the prehistory or history of California.

The 2004 RTP includes transportation projects that have the potential to impact archaeological materials because they could take place in previously undisturbed areas. Improvements and modifications to existing rights-of-way, such as HOV lanes, HOT lanes, new bus-ways and capacity enhancement facilities, mixed flow lanes, and right-of-way maintenance, would have less of an impact to archaeological resources because these project locations have previously been disturbed. However, construction of additional lanes, would potentially impact archaeological materials, if it would entail brush clearing, grading, trenching, excavation, and/or soil removal of any kind, in an area not previously used as a paved transportation facility.

The locations of Native American villages, burial grounds, and other archaeological sites are confidential. Archaeologists do not reveal information for these locales in order to preserve the integrity of these sites. Particularly the unknown sites that run the risk of being impacted, as their locations are unknown and cannot be avoided prior to surveys. Since this document analyzes impacts to cultural resources on a program level only, project-level analysis of impacts will also be necessary.

Mitigation Measures

MM 3.8-2a: As part of the appropriate environmental review of individual projects, the project implementation agencies shall consult with the NAHC to determine whether known sacred sites are in the project area, and identify the Native American(s) to contact to obtain information about the project site.

MM 3.8-2b: Prior to construction activities, the project implementation agencies shall obtain a qualified archaeologist to conduct a record search at the appropriate Information Center of the California Archaeological Inventory to determine whether the project area has been previously surveyed and whether resources were identified.

MM 3.8-2c: As necessary prior to construction activities, the project implementation agencies shall obtain a qualified archaeologist or architectural historian (depending on applicability) to conduct archaeological and/or historic architectural surveys as recommended by the Information Center. In the event the records indicate that no previous survey has been conducted, the Information Center will make a recommendation on whether a survey is warranted based on the sensitivity of the project area for cultural resources.

MM 3.8-2d: If the record search indicates that the project is located in an area rich with cultural materials, the project proponent shall retain a qualified archaeologist to monitor any subsurface operations, including but not limited to grading, excavation, trenching, or removal of existing features of the subject property.

MM 3.8-2e: Construction activities and excavation should be conducted to avoid cultural resources (if found). If avoidance is not feasible, further work may need to be done to determine the importance of a resource. The project implementation agencies shall obtain a qualified archaeologist familiar with the local archaeology, and/or an architectural historian should make recommendations regarding the work necessary to determine importance. If the cultural resource is determined to be important under state or federal guidelines, impacts on the cultural resource will need to be mitigated.

MM 3.8-2f: Project implementation agencies shall stop construction activities and excavation in the area where cultural resources are found until a qualified archaeologist can determine the importance of these resources.

Significance After Mitigation

Due to the size and potentially large number of archaeological sites that could be disturbed as a result of the combined projects, this impact would remain a **significant** impact to archaeological resources.

Paleontological Impacts

Impact 3.8-3: Construction activities involving excavation and earthmoving may encounter paleontological materials. This is a significant impact.

Excavation related to construction of projects proposed in the 2004 RTP may cause unearthing of buried paleontological resources, such as true fossils, fossil casts, and breas. Areas of particular concern include Los Angeles and Riverside Counties.

Construction occurring in previously undisturbed areas and deep excavation activities would have the greatest likelihood to affect paleontological resources. Construction activities for each transportation improvement would not result in excavation beyond 150 feet on either side of any improvement. Excavation and soil removal of any kind, irrespective of depth, has the potential to yield resources of paleontological significance. This makes it difficult to predict which areas are paleontologically sensitive. Similar to Impact 3.8-2, construction and excavating activities relating to this project pose a significant impact to paleontological materials.

The location of paleontological localities is considered privileged information in order to protect the integrity of geological formations and therefore not disclosed here. However, fossiliferous geologic formations that exist in each county are identified in the following text.

Mitigation Measures

MM 3.8-3a: As part of the appropriate environmental review of individual projects, the project implementation agencies shall obtain a qualified paleontologist to identify and evaluate paleontological resources where potential impacts are considered high; the paleontologist shall also conduct a field survey in these areas.

MM 3.8-3b: Construction activities shall avoid known paleontological resources, if feasible, especially if the resources in a particular lithic unit formation have been determined through detailed investigation to be unique. If avoidance is not feasible, paleontological resources should be excavated by the qualified paleontologist and given to a local agency, or other applicable institution, where they could be displayed.

Significance After Mitigation

Due to the size and potentially large number of paleontological localities that could be disturbed as a result of the combined projects, this impact would remain a **significant** impact.

Impacts to Human Remains

Impact 3.8-4: Construction activities involving excavation and earthmoving may encounter human remains.

Humans have occupied the six-county SCAG region for at least 10,000 years and it is not always possible to predict where human remains may occur outside of formal burials. Therefore it is likely that excavation and construction activities, regardless of depth, may yield human remains that may not be interred in marked, formal burials. Construction activities for each transportation improvement would not result in excavation beyond 150 feet on either side of any improvement and are considered to potentially yield a significant impact relative to the discovery of human remains. Under CEQA, human remains are protected under the definition of archaeological materials as being “any evidence of human activity”. Human remains are also protected under the Native American Graves and Repatriation Act (NAGPRA) of 1990, which was enacted to provide for the protection of Native American graves, as well as: culturally affiliated items, associated funerary objects, unassociated funerary objects, sacred objects, and objects of cultural patrimony.

The 2004 RTP transportation projects have the potential to yield previously undiscovered human remains, because they could take place in previously undisturbed or under-disturbed areas. Excavation and soil removal of any kind, irrespective of depth, has the potential to yield human remains.

Mitigation Measures

MM 3.8-4a: As part of the appropriate environmental review of individual projects, the project implementation agencies, 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, shall 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; and

MM 3.8-4b: If the remains are of Native American origin,

- The coroner will contact the Native American Heritage Commission in order to ascertain the proper descendants from the deceased individual. The coroner shall 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.

or,

- If the Native American Heritage Commission was unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission, in which case

- The landowner or his authorized representative shall obtain a 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 where the following conditions occur:

  - The NAHC is unable to identify a descendent;

  - The descendant identified fails to make a recommendation; or

  - The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the NAHC Commission fails to provide measures acceptable to the landowner.

Significance After Mitigation

The recommended mitigation would require the local jurisdiction to follow a comprehensive procedure to assess the magnitude of the impact, and to avoid or mitigate the impacts, if necessary, therefore this impact is considered **less than significant** after mitigation.

Cumulative Impacts

A cumulative impact consists of an impact which is created as a result of the combination of the 2004 RTP together with other projects causing related impacts.

Impacts and Mitigation Measures

Cumulative Impacts 3.8-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to existing historic resources and previously undisturbed and undiscovered cultural resources, as described in Impacts 3.8-1 through 3.8-4 above.

The amount of new urbanized acreage (consuming previously vacant land) would be on the order of 500,000 to 700,000 acres. This degree of urban development is reasonably foreseeable; however, to assign this future development to precise locations would be speculative, such that it cannot be estimated where cultural resources would be affected. Despite the inability to predict the acreage of previously undisturbed land that may be affected, it is reasonable to expect that this future urban development would contribute to the same types of impacts detailed in Impacts 3.8-1 through 3.8-4 above.

These effects are considered a significant cumulative impact.

Mitigation Measures

The cumulative impacts to cultural resources, due to the forecast urban development associated with the 2004 RTP, would be mitigated using the same measures detailed for Impacts 3.7-1 through 3.7-8, in addition to the following measure.

MM 3.8-5a: Future impacts to cultural resources shall be minimized through cooperation, information sharing, and program development of SCAG's *RCPG* and through SCAG's Energy and Environment Committee. The resource agencies, such as the Office of Historic Preservation, shall be consulted during this update process.

Significance After Mitigation

The impacts to cultural resources due to regional scale growth would be reduced through application of the mitigation measures, however the 2004 RTP's accommodation of approximately 6 million people to the SCAG region by 2030 would contribute to cumulative impacts. The 2004 RTP would **contribute significantly** to cumulative regional cultural impacts.

Comparison with the No Project

In the No Project alternative, the population of the SCAG region grows by 6 million people, however no regional transportation investments are made above the existing programmed projects. The population distribution follows past trends, uninfluenced by additional transportation investments.

Direct Impacts

Under the No Project alternative, there would be no new transportation projects (beyond those projects that would occur regardless of adoption of the Plan) resulting in fewer areas that would be impacted by excavation and construction activities. In Table 3.8-7, the No Project alternative is compared to the 2004 Plan impacts to previously undisturbed areas within the SCAG region. *The proposed Plan's transportation-related impacts to cultural resources would be greater than the No Project alternative*.

Table 3.8-7: Undisturbed Areas Occurring Within 150 feet of a Freeway, Transit, or Freight Rail Project (acres)

	2004 RTP (highways, transit and freight rail)	**No Project**
Total Acreage	15,424	3,229
% of 2004 RTP Acreage	100	21

Source: SCAG Analysis. (2003).
UCSB. (1999). GAP Analysis. (Best and most recent regional level data).

Cumulative Impacts

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. The Plan includes land use measures that support centers-based development, re-development and in-fill where feasible. These measures would help reduce the consumption and disturbance of natural lands. These measures are absent in the No Project Alternative. However, the proposed Plan also includes additional transportation improvements that facilitate access to natural lands that would be less accessible with the No Project Alternative. This improved accessibility would help facilitate population and economic growth to areas of the region that are currently not developed. Furthermore, the proposed Plan includes additional households and jobs associated with the economic benefits of the Plan that would consume vacant land. Due to these competing forces, it is expected that the No Project Alternative and the Plan would consume similar acreage of vacant land.

The No Project alternative's cumulative impacts to cultural resources due to urban development would be expected to be approximately the same as those of the 2004 RTP. Future urbanization of approximately the same magnitude as the Plan could be expected to impact existing historic resources and undisturbed areas that may contain cultural resources. *The No Project alternative's cumulative impacts to cultural resources would be approximately the same as those of the 2004 RTP.*

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3.9 GEOLOGY, SOILS, AND SEISMICITY

INTRODUCTION

This section describes the geology, soils, and seismicity in the SCAG region, identifies the potential impacts of these conditions on projects considered in the 2004 RTP, including mitigation measures for these impacts, and evaluates any residual impacts that would remain, subsequent to mitigation.

ENVIRONMENTAL SETTING

Topographic and Geologic Structures

Portions of the SCAG region extend over four geomorphic provinces (natural regions) of California. These provinces, depicted in Figure 3.9-1 (see the Figure Chapter at the end of this document), are referred to as the Mojave Desert, the Transverse Ranges, the Peninsular Ranges, and the Colorado Desert. [1]

Mojave Desert

The Mojave Desert geomorphic province occupies approximately 25,000 square miles. It is bounded by the San Andreas fault and the Transverse Ranges to the west, the Garlock fault and the Tehachapi Mountains to the north (in Kern County), the Nevada State line to the east, and the San Bernardino/Riverside County boundary to the south. Portions of Los Angeles and San Bernardino Counties lie within this province.

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 sea level (asl), and most valleys lie between 2,000 to 4,000 feet asl.

Transverse Ranges

The Transverse Ranges geomorphic province is a series of east-west trending mountain ranges and broad alluvial valleys that extend approximately 320 miles from Point Arguello in the west to the Little San Bernardino Mountains at the edge of the Mojave and Colorado Desert provinces in the east. This geomorphic province includes Ventura County and portions of Los Angeles, San Bernardino, and Riverside Counties.

[1] The Basin Range province covers the northwest corner of San Bernardino County.

Prominent basins and ranges in the Transverse Ranges include the Ventura basin and the San Gabriel and San Bernardino Mountains. Several active faults, including the San Andreas Fault Zone, are located in the Transverse Ranges. 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. The Transverse Ranges include California's highest peaks south of the central Sierra Nevada and the only Paleozoic rocks in the coastal mountains in the United states. The province is subdivided into ranges and intervening valleys. Broad alleviated valleys, narrow stream canyons, and prominent faults separate these ranges.

Peninsular Ranges

The Peninsular Ranges geomorphic province extends from the Transverse Ranges to deep within Mexico, passing through the Los Angeles Basin and continuing 775 miles south of the US-Mexico border. The Peninsular Ranges are bounded on the west by the Transverse Ranges and on the east by the Colorado Desert, and include Orange County and the San Jacinto Mountains and the Coachella Valley in the central portion of Riverside County. The ranges are comprised of a series of northwest-southeast trending mountains that are separated by several active faults, including the San Jacinto and Elsinore Fault zones.

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 asl. 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 bounded to the east by the Colorado River, to the south by the Mexican border, and on the west by the Transverse Ranges. This province includes Imperial County and eastern Riverside County. The Colorado Desert trends northwesterly-southeasterly, as do most geologic provinces in Southern California. The San Andreas Fault system is prominent in the northeast side of the Salton Trough. The Colorado desert lies at low elevation, as compared with the Mojave Desert province, ranging from the Colorado River Valley, at approximately 350 feet asl, to the Salton Basin, at 235 feet below sea level. Its geologic features include playas separated by sand dunes and the Salton Trough, a large structural depression that extends from Palm Springs to the Gulf of California.

<u>Soils</u>

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. The individual soil characteristics are key in determining the suitability of the soil for agricultural use or for 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. Although many soils in the SCAG region are suitable for agricultural uses, each soil type may have properties that could limit its uses and represent an agricultural or development hazard.[2] These limitations are listed and discussed below. Figure 3.9-2 (see the Figure Chapter at the end of this document) maps the general location of soil types contained within the SCAG region. Applicable U.S. Department of Agriculture Natural Resource Conservation Service (USDA-NRCS) soil surveys for specific counties provide the classification and description of each soil type encountered in the SCAG region. Figure 3.1-6 (see the Figure Chapter at the end of this document) contains the general location of areas considered prime or important farmlands.

Seismicity

The SCAG region is located in an area that has historically experienced high seismicity. 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, all of which traverse the SCAG region. 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, liquefaction, or dam failure. In Southern California, the last earthquake exceeding Richter magnitude 8.0 occurred in 1857. Much more frequent are smaller temblors, like the relatively moderate (but still exceedingly damaging) 1971 San Fernando and 1994 Northridge earthquakes, both classified as magnitude 6.7 quakes.[4]

Regional Faults

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.

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[2] United States Department of Agriculture, Soil Conservation Service (SCS). 1970. *Soil survey of ventura area, California.* Issued April, 1970.

[3] It should be noted that new faults continue to reveal themselves, such as in the case of the Northridge earthquake of 1994, and the potential seismic threats posed by these faults also continue to be reevaluated on the basis of new geologic information and analysis, as in the recent case of the Puente Hills Fault [Dolan et al., 2003; McFarling, 2003].

[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 [EQE International, 1994].

The SCAG region contains lateral strike slip faults similar to the San Andreas and various identified and hidden blind thrust faults. 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 Holocene (10,000 years ago to present) period. Potentially active faults are defined as faults that have exhibited evidence of displacement during the Pleistocene period (10,000 years to 1.8 million years ago). Class A faults have slip rates greater than 5 millimeters per year (mm/yr) and generally have substantial historic seismic data available, while Class B faults have slip rates smaller than 5 mm/yr and, as a rule, historic seismic data on which to develop reliable recurrence intervals of large events is lacking.

Table 3.9-1 characterizes the major faults in the SCAG region. Figure 3.9-3 (see the Figure Chapter at the end of this document) illustrates the geographic location of these faults in the region.

Geologic Hazards

Potential geologic hazards include expansive soils, settlement, subsidence, and erosion. Relevant geologic hazards applicable to the SCAG region are discussed below. These conditions are important with respect to transportation, as they may pose hazards that can affect operation of facilities or can constrain system development.

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 comprise the upper 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

Table 3.9-1: Characterization of Major Faults in the Southern California Region[5] (Los Angeles, San Bernardino, Riverside, Orange, Imperial, Ventura Counties)				
Class A Faults				
Fault	**Counties**	**Recency**[6]	**Slip Rate (mm/yr)**	**Max. Moment**[7]
San Andreas	Los Angeles, San Bernardino, Riverside, Imperial	Historic	25.0-34.0	7.2-7.5
San Jacinto-Imperial	San Bernardino, Riverside, Imperial	Holocene, Later Quaternary	4.0-20.0	6.6-7.2
Elsinore	Riverside, Imperial	Holocene	2.5-5.0	6.8-7.1
ELSINORE AND SAN JACINTO FAULT ZONES (NON-CLASS A FAULTS)				
Brawley Seismic Zone	Imperial		25.0	6.4
Chino	San Bernardino, Riverside		1.0	6.7
Earthquake Valley	-		2.0	6.5
Elmore Ranch	Imperial		1.0	6.6
TRANSVERSE RANGES AND LOS ANGELES BASIN				
Clamshell-Sawpit	Los Angeles		0.5	6.5

5 Characterization of the faults in Southern California is derived from documents accessible at the California Geological Survey's web page, Probabilistic Seismic Hazard Assessment Maps (PSHA), at: <http://www.consrv.ca.gov/cgs/rghm/psha/index.htm>; see Petersen, et al., 1996. The geographic location of the faults is derived from fault characterizations at the USGS web site for recent earthquake activity at <http://quake.wr.usgs.gov/recenteqs/FaultMaps/118-34.htm>, and also from the list of California and Nevada faults at <http://quake.wr.usgs.gov/info/faultmaps/faultlist.html>.

6 "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 200 years, in California and Nevada).

Holocene: Refers to a period of time between the present and 10,000 years before present. Faults of this age are commonly considered active. For the purpose of classifying faults, C.W. Jennings defined Holocene to exclude the Historic; that is, from 200 to 10,000 years before the present).

Late Quaternary: Refers to the time period between the present and approximately 700,000 years before the present. Here too, for the purpose of classifying faults, Jennings defined Late Quaternary to exclude the Holocene and the Historic."

http://quake.wr.usgs.gov/info/faultmaps/slipage.html

Where no recency data is given, no determination has been made.

7 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. 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, 2002b]. Richter magnitude estimations can be generally higher than moment magnitude estimations.

Table 3.9-1: Characterization of Major Faults in the Southern California Region (cont.)
(Los Angeles, San Bernardino, Riverside, Orange, Imperial, Ventura Counties)

Class B Faults				
Fault	**Counties**	**Recency**	**Slip Rate (mm/yr)**	**Max. Moment**
TRANSVERSE RANGES AND LOS ANGELES BASIN (cont.)				
Cucamonga	San Bernardino		5.0	6.9
Hollywood	Los Angeles		1.0	6.4
Holser	Ventura		0.4	6.5
Malibu Coast	Los Angeles, Ventura		0.3	6.7
Mission Ridge - Arroyo Parida - Santa Ana	Los Angeles		0.4	7.2
Newport-Inglewood	Los Angeles, Orange	Late Quaternary (?)	1.0	7.1
Oak Ridge	Ventura	Holocene, Late Quaternary	4.0	7.0
Palos Verdes	Los Angeles		3.0	7.3
Pleito	-			
Raymond	Los Angeles		1.5	6.5
Red Mountain	San Bernardino		2.0	7.0
San Cayetano	Ventura		6.0	7.0
San Gabriel	Ventura, Los Angeles	Holocene	1.0	7.2
San Jose	San Bernardino, Los Angeles		0.5	6.4
Santa Monica	Los Angeles		1.0	6.6
Santa Ynez (West)	Ventura		2.0	7.1
Santa Ynez (East)	Ventura		2.0	7.1
Santa Susana	Ventura, Los Angeles	Historic, Late Quaternary	5.0	6.7
Sierra Madre (San Fernando)	Los Angeles		2.0	6.7
Sierra Madre	Los Angeles	Holocene, Late Quaternary	2.0	7.2
Simi-Santa Rosa	Ventura		1.0	7.0
Ventura-Pitas Point	Ventura		1.0	6.9
Verdugo	Los Angeles, Ventura		0.5	6.9
White Wolf	-		2.0	7.3
LOS ANGELES BLIND THRUSTS				
Compton thrust	-		1.5	6.8
Elysian Park	-		1.5	6.7
Upper Elysian Park	-		1.3	6.4
Northridge	Ventura, Los Angeles		1.5	7.0
Puente Hills blind thrust	Los Angeles		0.7	7.1
TRANSVERSE RANGES AND MOJAVE				
Fault	**Counties**	**Recency**	**Slip Rate** (mm/yr)	**Max. Moment**
Blackwater	-		0.6	7.1
Burnt Mountain	-		0.6	6.5
Calico-Hidalgo	San Bernardino		0.6	7.3

Table 3.9-1: Characterization of Major Faults in the Southern California Region (cont.) (Los Angeles, San Bernardino, Riverside, Orange, Imperial, Ventura Counties)				
Class B Faults				
Fault	**Counties**	**Recency**	**Slip Rate (mm/yr)**	**Max. Moment**
TRANSVERSE RANGES AND MOJAVE (cont.)				
Cleghorn	San Bernardino		3.0	6.5
Eureka Peak	-		0.6	6.4
Gravel Hills-Harper Lake	San Bernardino		0.6	7.1
Helendale-S. Lockhart	San Bernardino		0.6	7.3
Johnson Valley (Northern)	San Bernardino		0.6	6.7
Landers	-		0.6	7.3
Lenwood - Lockhart-Old Woman Springs	San Bernardino		0.6	7.5
North Frontal Fault zone (Western)	San Bernardino		1.0	7.2
North Frontal Fault zone (Eastern)	San Bernardino		0.5	6.7
Pinto Mountain	San Bernardino		2.5	7.2
Pisgah -Bullion Mountain-Mesquite Lake	San Bernardino		0.6	7.3
S. Emerson-Copper Mountain	San Bernardino		0.6	7.0
- Location data not found Source: California Geological Survey; U.S. Geological Survey				

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. The impact of subsidence could include lowering of the land surfaces, increased potential for flooding, potential disturbance or damage to buried pipelines and associated structures, and damage to structures designed with minimal tolerance for settlement.

Figure 3.9-4 (see the Figure Chapter at the end of this document) shows areas within the SCAG region susceptible to subsidence.

Landslides

Generally, a slope can fail when its ability to resist movement decreases and the stresses on a slope increase. 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. Factors that decrease resistance to movement in a slope include pore water pressure, material changes, and structure. 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. Over-steepening 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.

Figure 3.9-5 (see the Figure Chapter at the end of this document) shows areas within the SCAG region susceptible to landslides.

The coastal regions of Los Angeles, Orange, and Ventura Counties are susceptible to wave erosion hazards. 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.

The Pacific Ocean borders the Peninsular Range province and the Transverse Range 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 landsliding. 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.

Soil Erosibility

Soil erosion is also a natural on-going process that transports, erodes and displaces soil particles through a transport mechanism such as flowing water or wind. Loose texture and steep slopes

primarily result in high wind erosibility potential in soils. Wind erosion is most severe in arid regions where sandy or loamy sediments are unvegetated 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 from 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 increase wind erosion potential. Many of the desert areas in the SCAG region are also 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.

Figure 3.9-6 (see the Figure Chapter at the end of this document) shows the general location of soils within the SCAG Region which exhibit moderate to high erosion potential.

Seismic Hazards

Movements on the previously identified faults will 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. Studies supported by the National Earthquake Hazards Reduction Program enable scientists to evaluate the hazard level in different areas. In Southern California, scientists estimate that the probability of a magnitude 7.0 or greater earthquake by the year 2024 approaches 80 to 90 percent. The four major hazards generally associated with earthquakes are ground shaking, fault surface rupture (ground displacement), liquefaction ground failures, and settlement.

Peak Ground Acceleration

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.

Ground shaking is commonly described in terms of peak ground acceleration as a fraction of the acceleration of gravity (g), or by using the Modified Mercalli Intensity Scale, a common metric for characterizing intensity. The Mercalli Scale is a more descriptive method involving 12 levels of intensity denoted by Roman numerals. As presented in Table 3.9-2, below, Modified Mercalli

Table 3.9-2: Modified Mercalli Intensity Scale[8]
I. Not felt except by a very few under especially favorable conditions.
II. Felt only by a few persons at rest, especially on upper floors of buildings.
III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
XII. Damage total. Lines of sight and level are distorted. Objects thrown into the air.
Source: U.S. Geological Survey, National Earthquake Information Center

(MM) intensities range from level I (shaking that is not felt) to level XII (total damage). MM intensities ranging from IV to X could cause moderate to significant structural damage. The degree of structural damage, however, will not be uniform. Not all buildings perform identically in an earthquake. The age, material, type, method of construction, size, and shape of a building all affect its performance.

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 estimated maximum moment magnitudes represent characteristic earthquakes on particular faults.[9] 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 can vary depending on the overall magnitude,

8 Excerpted from <http://neic.usgs.gov/neis/general/mercalli.html>

9 Moment magnitude is related to the physical size of a fault rupture and movement across a fault. 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 [California Geological Survey (CGS), 1997]. See Table 3.9-1, pg. 3.9-5, for the moment magnitudes associated with particular faults.

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.

Figure 3.9-3 (see the Figure Chapter at the end of this document) identifies potential areas of Peak Ground Acceleration.

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.[10] 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 one inch to 20 feet.

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972, to mitigate the risk to human habitation of seismically-induced ground-surface ruptures. 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. Surface rupture is the most easily avoided seismic hazard, provided regulatory stipulations embedded in this law are met.

The law 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.[11] An indicative map of identified Earthquake Fault Zones delineating potential rupture areas is provided in Figure 3.9-3 (see the Figure Chapter at the end of this document). Detailed maps are distributed to all affected cities, counties, and state agencies for their use in planning and controlling 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).

Liquefaction and Ground Failure

Liquefaction is 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

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[10] California Geological Survey (CGS), *Guidelines for evaluating the hazard of surface fault rupture*, CGS Note 49, 2002a.

[11] "Earthquake Fault Zones" were called "Special Studies Zones" prior to January 1, 1994.

solid to a more liquid form. Liquefaction has been responsible for ground failures during almost all of California's large earthquakes. The depth to groundwater can control the potential for liquefaction; the shallower the groundwater, the higher the potential for liquefaction. Earthquake-induced liquefaction most often occurs in low-lying areas with soils or sediments composed of unconsolidated, saturated, clay-free sands and silts, but can also occur in dry, granular soils, or saturated soils with some clay content.

Four kinds of ground failure commonly result from liquefaction: lateral spread, flow failure, ground oscillation, and loss of bearing strength. A *lateral spread* is a horizontal displacement of surficial blocks of sediments resulting from liquefaction in a subsurface layer. Lateral spread occurs on slopes ranging between 0.3 and 3 percent and commonly displaces the surface by several meters to tens of meters. *Flow failures* occur on slopes greater than 3 degrees and are primarily liquefied soil or blocks of intact material riding on a liquefied subsurface zone. *Ground oscillation* occurs on gentle slopes when liquefaction occurs at depth and no lateral displacement takes place. Soil units that are not liquefied may pull apart from each other and oscillate on the liquefied zone. Ground fissures can accompany ground oscillation and sand boils and damage underground structures and utilities. The *loss of bearing pressure* can occur beneath a structure when the underlying soil loses strength and liquefies. When this occurs, the structure can settle, tip, or even become buoyant and "float" upwards.

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. Alluvial valleys and coastal regions are particularly susceptible to liquefaction. 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 Subsidence

Settlement of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid compaction and settling of subsurface materials (particularly loose, non-compacted, and variable sandy sediments) due to the rearrangement of soil particles during prolonged ground shaking. Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different rates). Within the SCAG region, artificial fills, unconsolidated alluvial sediments, slope washes, and areas with improperly engineered construction-fills typically underlie areas susceptible to this type of settlement.

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 landsliding has typically been found to occur within 75 miles of the epicenter of a magnitude 6.5 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. Areas of the SCAG region are susceptible to seismically-induced landsliding because of the abundance

of active faults in the region and the existing landslide hazards. (See Figure 3.9-5, in the Figure Chapter at the end of this document.)

Earthquake-Induced Inundation

Because California and the West Coast of the United States are seismically active, California is subject to flood hazard from tectonic activity capable of generating submarine earthquakes, volcanic eruptions, and landslides. Considering its proximity to the Pacific Ocean, the inundation by tsunamis (seismic sea waves) or seiches (oscillating waves in enclosed water bodies) can occur along the California coast in the event of significant earthquake. For purposes of a relative comparison, an earthquake with its epicenter in Alaska and with a magnitude of 8.5 (Richter scale) generated a seismically induced sea wave with a maximum wave height of 11 feet in the Monterey Harbor, on the central coast of California north of the SCAG region.

REGULATORY SETTING

The regulatory setting describes the federal, state, and local agencies that have jurisdiction over geology, soils, and seismicity. The regulations pertinent to these areas that each of these agencies enforce are also described.

Federal Agencies and Regulations

U.S. Department Of Agriculture, Natural Resources Conservation Service (NRCS)

The NRCS maps soils and farmland uses to provide comprehensive information necessary for understanding, managing, conserving and sustaining the nation's limited soil resources. In addition to many other natural resource conservation programs, the NRCS manages the Farmland Protection Program, which provides funds to help purchase development rights to keep productive farmland in agricultural uses. Working through existing programs, USDA joins with State, tribal, or local governments to acquire conservation easements or other interests from landowners.

State Agencies and Regulations

California Department of Conservation

In 1982, the State of California created the Farmland Mapping and Monitoring Program within the California Department of Conservation to carry on the mapping activity from the NRCS on a continuing basis. The California Land Conservation Act of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Williamson Act contracts, also known as agricultural preserves, offer tax incentives for agricultural land preservation by ensuring that land will be assessed for its agricultural productivity rather than its highest and best uses.

California Building Code

The *California Building Code* is another name for the body of regulations contained in Title 24, Part 2, of the California Code of Regulations, which is a portion of the California Building Standards Code (CBSC, 1995). Title 24 is assigned to the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable (Bolt, 1988). Published by the International Conference of Building Officials, the Uniform Building Code (UBC) is a widely adopted model building code in the United States. The California Building Code incorporates by reference the UBC with necessary California amendments. About one-third of the text within the California Building Code has been tailored for California earthquake conditions. Although widely accepted and implemented throughout the United States, local, city and county jurisdictions can adopt the UBC either in whole or in part.

Alquist-Priolo Special Study Zones

The Alquist-Priolo Earthquake Fault Zoning Act of 1971 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 Alquist-Priolo 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.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 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 Earthquake Fault Zoning Act.

California Department of Transportation (Caltrans)

Caltrans' jurisdiction includes rights-of-way of state and interstate routes within California. Any work within the right-of-way of a federal or state transportation corridor is subject to Caltrans' regulations governing allowable actions and modifications to the right-of-way. 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 the state Surface Mining Area Reclamation Act (SMARA).

Local Agencies and Regulations

General Plans and Seismic Safety Element

City and county governments typically develop as part of their General Plans, safety and seismic elements that 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. General Plans can provide policies and develop ordinances to ensure acceptable protection of people and structures from risks associated with these hazards. Ordinances can include those addressing unreinforced masonry construction, erosion or grading.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts associated with geology, soils, seismicity.

The transportation projects and growth projections for the year 2030 are regional, cumulative, and long-term in nature, and provide a conservative estimate of potential environmental impacts.

Comparison with the No Project

The analysis of geology, soils, and seismicity includes a comparison between the expected future conditions with the proposed Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the benefits and effects of the 2004 RTP.

Determination of Significance

The methodology for determining the significance of these impacts compares the existing conditions to expected future conditions with the Plan, as required in CEQA Guidelines Section 15126.2(a). The assessment of geologic impacts was performed by overlaying data in GIS format on the location of areas known to pose seismic or geologic hazards. Specifically, the proposed projects and associated growth of the proposed Plan were plotted on maps that identify potential hazards, such as known faults, high ground acceleration areas, areas exhibiting landslide potential, areas of potential subsidence, and areas with highly erodible soils in the SCAG region. A 300-foot-wide buffer, 150 feet to either side, was projected along all transportation project segments, and taken as a reasonable estimate of land area likely to be directly disturbed by projects considered in the 2004 RTP. The GIS data was then used to

determine the proximity of proposed projects, and any associated growth, to potential geologic constraints or features.

SIGNIFICANCE CRITERIA

Criteria for determining significance of impacts were developed from the CEQA Guidelines Appendix G. The proposed Plan may have a significant impact if its implementation would potentially:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist, or based on other substantial evidence of a known fault [refer to CGS's Special Publication 42];
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction;
  - Landslide;
- Result in substantial soil erosion or the loss of topsoil;
- Locate transportation projects on, or facilitate growth to occur on, strata or soil that are unstable, or that would become unstable as a result of the project, such as expansive soils, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse, creating substantial risks to life or property;
- Result in cumulatively considerable adverse effects on human beings.

IMPACTS AND MITIGATION MEASURES

A summary of the potential impacts of geologic and seismic hazards on proposed regional transportation projects is presented in Table 3.9-3, below. A more detailed discussion of the impacts and the potential mitigation measures follows the table.

All mitigation measures shall be included in project-level analysis, as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through its Intergovernmental Review Process.

Impact 3.9-1: Seismic events can damage transportation infrastructure through surface rupture, ground shaking, liquefaction, and landsliding. In addition, seismically induced tsunami and seiche waves can damage transportation infrastructure proximate to coastal areas. Potential impacts to property and public safety from seismic activity would be

Table 3.9-3: Potential Impacts of Seismic and Geologic Hazards On Regional Transportation Projects (By County)

Project	Ground Acceleration	Erosion	Subsidence	Landslide	Liquefaction[12]
Imperial County					
SR 98	X	X			NA
SR 111	X	X			NA
SR 115	X				NA
Los Angeles County					
I 5	X		X		X
I 10	X	X		X	X
I 405			X		X
I 710	X	X			X
SR 14	X	X	X	X	X
SR 30	X	X		X	X
SR 60				X	X
SR138	X	X			
BRT	X		X		
Light Rail	X		X		
Metrolink	X	X		X	
Transitway	X				X
Freight Rail			X	X	
Orange County					
I 5		X		X	X
I 405					X
SR 22			X		
SR 55					X
SR 57			X	X	X
SR 73		X		X	X
SR 91			X	X	X
SR 241		X		X	X
BRT		X			X
Centerline Rail		X			X
Freight Rail			X	X	X
Riverside County					
Ramona/Cajalco Expressway	X			X	NA
I 15	X	X		X	NA
I 215	X			X	NA
SR 60	X	X			NA
SR 74		X		X	NA
SR 79	X	X		X	NA
SR 91	X	X			NA
Metrolink	X			X	NA
Freight Rail	X	X		X	NA
San Bernardino County					
I 10	X	X			NA
I 15	X	X		X	NA
I 215	X	X			NA
SR 18		X		X	NA
SR 30	X	X			NA
SR 60	X	X			NA
SR 138	X	X		X	NA
US 395	X	X		X	NA
Light Rail	X	X			NA
Metrolink	X	X			NA
Freight Rail	X	X		X	NA
Ventura County					
SR 23	X			X	X
SR 118	X		X	X	X
US 101				X	X
Metrolink	X	X	X		X

Source: SCAG; California Division of Mines and Geology; Southern California Earthquake Center; U.S. Department of Agriculture STATSGO Database; California Department of Conservation.

12 Liquefaction potential data was not available, at the time of this analysis, for Imperial, Riverside, and San Bernardino Counties.

considered significant in some cases. The proposed mitigation measures would reduce this impact to less than significant levels.

The entire SCAG region is susceptible to impacts from seismic activity. Numerous active faults are known to exist in the region that could potentially generate seismic events capable of significantly affecting existing and proposed transportation facilities. As such, new transportation facilities would be exposed to both direct and indirect effects of earthquakes. Potential effects from surface rupture and severe ground shaking could cause catastrophic damage to transportation infrastructure, particularly overpasses and underground structures.

The 2004 RTP includes highway, arterial, and public transit projects throughout the SCAG region. The highway and arterial projects mostly include widening existing highways and constructing new interchanges. A few projects involve constructing new highway segments including auxiliary capacity enhancement facilities and mixed flow connectors. New rail lines proposed in the 2004 RTP include the Gold Line extension from Pasadena to Montclair in San Bernardino, the Exposition Light Rail Line from downtown Los Angeles to Santa Monica, the Green Line extension to the LAX airport, the Centerline light rail project in Orange County, and the Metrolink extensions throughout the region. The proposed Maglev system would traverse the urbanized area of the SCAG region primarily within the rights-of-way for existing freeway corridors. All the existing highways and rail lines in the SCAG region are subject to seismic or geologic influences to some degree. Similarly, new bus rapid transit (BRT) routes and goods movement (freight) rail routes proposed in the 2004 RTP on existing roadways and railways would each be susceptible to seismic or geologic impacts for at least some portion of their length.

Many proposed projects would be located within or across Alquist-Priolo Fault Zones. These zones are identified as areas directly over faults that are susceptible to surface rupture. (See Figure 3.9-3 in the Figure Chapter at the end of this document.) The Maglev transit system would cross numerous Alquist-Priolo Zones including the San Andreas Fault Zone. Other projects would be located in areas known to experience severe ground acceleration during earthquakes. These areas would be susceptible to severe ground shaking and earth movement. Other projects would be located on soils prone to liquefaction or in landslide-prone areas. Table 3.9-3, above, lists highway corridors, by county, for which construction projects have been proposed near areas of known seismically-induced severe ground acceleration, subsidence, landslide, or liquefaction potential. In addition to direct impacts on transportation infrastructure, seismic events could damage ancillary facilities such as port facilities, traffic control equipment, and train stations. These indirect impacts could promote additional delays and breaks in service while repairs are made.

The CGS, pursuant to the Sesimic Hazards Act of 1990, has begun preparing seismic hazard maps of the southern California region. These maps identify areas with high potential for exhibiting liquefaction. At this time only a portion of the SCAG region has been mapped. Therefore, specific information on areas prone to liquefaction or seismically induced landsliding is not yet available for each of the proposed projects. The potential for 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.

As with the 1994 Northridge Earthquake, earthquakes can occur within previously undetected fault zones. As such, the potential exists for severe earthquakes to occur in unexpected locations throughout the SCAG region. Given the ubiquity of the transportation infrastructure in the region, future seismic activity from previously unknown faults could present catastrophic impacts to the network. Similarly, liquefaction potential can change over time in heavily landscaped areas such as parks and agricultural areas, as groundwater levels are altered.

Although seismic activity can cause damage to existing substandard construction, new designs taking account of current engineering knowledge can significantly reduce potential damage and harm. Earthquake-resistant designs employed on new structures minimize the impact to public safety from seismic events. As such, 2004 RTP projects that employ design standards which consider seismically active areas would reduce their potential for significant impacts.

Impacts from tsunamis would be isolated to the coastal regions. None of the proposed new highway or transit projects would be susceptible to inundation by tsunami, given their distance from the coast. Local jurisdictions provide guidance for tsunamis along coastal areas. For example, the City of Los Angeles General Plan Framework identifies a 12-foot run-up potential from a severe tsunami wave. Although building within this zone is not prohibited, certain early warning and emergency egress route systems are encouraged. Seiche waves could potentially over-top dam structures in the region and inundate low lying areas. Local water agencies, the State Department of Water Resources, and the federal Bureau of Reclamation are responsible for ensuring dam safety in the region including those from seismic events. Structural considerations have been included in each dam in the region to reduce potential failure. Due to remote potential for the occurrence of tsunamis or seiche waves and the general oversight of management agencies, the effects on transportation infrastructure would not be considered significant.

Mitigation Measures

MM 3.9-1a: Implementing agencies shall ensure that projects are designed in accordance with county and city code requirements for seismic ground shaking. The design of projects shall consider seismicity of the site, soil response at the site, and dynamic characteristics of the structure, in compliance with the appropriate California Building Code standards for construction in or near fault zones.

MM 3.9-1b: Implementing agencies shall ensure that projects located within or across Alquist-Priolo Zones comply with design requirements provided in Special Publication 117, published by the CGS[13], as well as relevant local, regional, state, and federal design criteria for construction in seismic areas.

MM 3.9-1c: The project implementing agencies shall ensure that geotechnical analysis is conducted within construction areas to ascertain soil types and local faulting prior to preparation of project designs.

[13] See: <http://gmw.consrv.ca.gov/shmp/SHMPsp117.asp>

Significance After Mitigation

Less than significant.

Impact 3.9-2: Highway and rail construction can require significant earthwork and road cuts, increasing long-term erosion potential and slope failure. Earthwork can also alter unique geologic features. The impacts of projects considered as part of the 2004 RTP would be considered significant in some cases.

Several projects proposed in the 2004 RTP would involve substantial construction of new facilities such as rail lines and highway segments within previously undisturbed areas. Some of these projects could require significant earth work or cuts into hillsides which can become unstable over time. Road cuts can expose soils to erosion over the life of the project, creating potential landslide and falling rock hazards. Engineered roadways can be undercut over time by stormwater drainage and wind erosion. Some areas would be more susceptible to erosion than others due to the naturally occurring soils with high erosion potential. Other projects on steep grades or winding mountain passes, such as along State Route 14 in Los Angeles County and Interstate 15 in San Bernardino County, would pose the greatest potential impacts. Table 3.9-3, above, lists the highways on which proposed projects would be located in areas with moderate or high erosion potential.

Notwithstanding natural soil types, engineered soils can also erode due to poor construction methods and design features or lack of maintenance. Appropriate construction methods, earthwork design, and road cut design can reduce this potential impact to less than significant levels.

New roadways can also permanently alter unique geologic features, particularly in canyons, coast lines, and mountain passes. However, most of the projects proposed in the 2004 RTP would occur in urbanized portions of the SCAG region or in existing transportation corridors. Nonetheless, new lanes along State Route 14 (SR-14), Interstate 405 (I-405), and I-15 may require earthwork that would impact existing natural geologic features.

Mitigation Measures

MM 3.9-2a: The project implementing agencies shall ensure that project designs provide adequate slope drainage and appropriate landscaping to minimize the occurrence of slope instability and erosion. Design features shall include measures to reduce erosion from stormwater. Road cuts shall be designed to maximize the potential for revegetation.

MM 3.9-2b: Implementing agencies shall ensure that projects avoid landslide areas and potentially unstable slopes wherever feasible.

MM 3.9-2c: Where practicable, routes and project designs that would permanently alter unique geologic features shall be avoided.

Significance After Mitigation

Given the topography, ecology and meteorology of the SCAG region, long-term erosion and the potential for slope-failure will remain **significant**.

Impact 3.9-3: Local geology can affect transportation infrastructure. Potentially significant impacts to property and public safety could occur due to subsidence and the presence of expansive soils. Mitigation measures would reduce these impacts to less than significant levels.

Subsidence has historically occurred within the SCAG region due to groundwater overdraft and petroleum extraction. Unconsolidated soils containing petroleum or groundwater often compress when the liquids are removed, causing the surface elevation to decrease. Improperly abandoned oil wells or underground hard rock mining can also cause localized subsidence. Areas of historic subsidence within the SCAG region exist in the Santa Clara River Valley and in the historic oil and gas fields of Los Angeles County including the Baldwin Hills, Long Beach, and Puente Hills areas. The Port of Long Beach has also experienced subsidence due to the placement of fill along the original coast-line. Table 3.9-3, above, lists the highways and new rail lines on which projects are proposed in areas of historic subsidence.

Subsidence can also occur in areas with unconsolidated soils that have not historically shown elevation changes. Transportation infrastructure designs must include appropriate reinforcement to minimize potential impacts from subsidence in areas where such activity has not been witnessed.

In addition, 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, making it necessary to survey project areas extensively prior to construction. Each new project location would have the potential to contain expansive soils, although they are more likely to be encountered in lower drainage basin areas.

Expansive soils are generally removed during foundation work to avoid structural damage. Many of the projects proposed in the 2004 RTP would occur within existing transportation corridors, where expansive soils may be expected to have already been removed. New freeways such as the I-710 extension and new rail lines such as the Gold Line Extension from Pasadena to Montclair, and the Green Line Extension near LAX could potentially encounter expansive soils.

Mitigation Measures

MM 3.9-3a: Implementing agencies shall ensure that geotechnical investigations are conducted by a qualified geologist to identify the potential for subsidence and expansive soils. Recommended corrective measures, such as structural reinforcement and replacing soil with engineered fill, shall be implemented in project designs.

MM 3.9-3b: Implementing agencies shall ensure that, prior to preparing project designs, new and abandoned wells are identified within construction areas to ensure the stability of nearby soils.

Significance After Mitigation

Less than significant.

Cumulative Impact 3.9-4: The actions considered by the 2004 RTP have the potential to cause cumulatively considerable adverse effects on human beings, when considered at the regional scale.

Given the ubiquitous distribution of potentially hazardous geological and seismic factors in Southern California, and given the regional scale of transportation projects and programs considered as part of the 2004 RTP, when taken along with the urban form implications of these proposals, the cumulative impacts of the 2004 RTP on geological and seismic factors would be significant.

Mitigation Measures

The project-level mitigation measures (MM 3.9-1 to MM 3.9-3) specified in the three impact categories discussed above, are expected, generally, to provide some measure of additive relief from the potential hazards due to geologic and seismic factors. In addition, the regional-scale planning and growth visioning activities carried out by SCAG in preparation of the 2004 RTP are expected to heighten awareness, particularly among county and city agencies, of the importance of appropriate siting decisions. As can be read from the maps used in this analysis, while it is meaningful to speak of the ubiquity of seismic and geologic hazards throughout the SCAG region, it is also notable that many of the hazards are highly localized. Appropriate use of engineering technologies, when coupled with well thought-out siting decisions, can considerably lessen the potential for harm to human life and property resulting from these factors, taken together.

Significance After Mitigation

Despite the inclusion of the proposed mitigation measures, the cumulative impact remains **significant**.

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3.10 HAZARDOUS MATERIALS

INTRODUCTION

This section describes hazardous materials transportation, releases to the environment, and the associated risks within the SCAG region, identifies the potential impacts of the RTP on hazardous materials transportation and risks, includes mitigation measures for the impacts, and evaluates the residual impacts.

ENVIRONMENTAL SETTING

There are several ways in which the transportation-related use of hazardous materials poses a risk to residents of the SCAG region. Actual transport of hazardous materials via truck, rail, and other modes involves a degree of risk of accident and release. The use of hazardous materials and the generation of hazardous waste in the construction and maintenance of the transportation system are other avenues for risk or exposure. Finally, the past disposal of hazardous materials in a manner that creates residual contamination of soil or water can be a source of risk when such sites are disturbed in the course of future transportation projects or associated development. Each of these avenues is discussed below.

Hazardous Materials Transportation

Hazardous materials move through the SCAG region by a variety of modes: truck, rail, air, ship, and pipeline. Since pipelines are not within the scope of the regional transportation planning process, which applies to surface transportation, they will not be further discussed in this report.

According to the Office of Hazardous Materials Safety (OHMS) in the 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 of hazardous materials implies a degree of risk, depending on the material being moved, the mode of transport, and numerous other factors.

According to national data[1], chemicals and allied products make up the majority of shipments and movements of hazardous materials, with petroleum products a close second and other hazardous materials (including hazardous waste, medical waste, radioactive materials and others) accounting for ten percent or less of total shipments. On a tonnage basis, however, petroleum products make up the majority – more than eighty percent – of hazardous material moved. Table

[1] United States Department of Transportation, Research and Special Programs Administration, Office of Hazardous Materials Safety. (1998, October). *Hazardous materials shipments: Tables 1 and 2 [Data file]*. Washington, DC: Author.

3.10-1 presents estimates of annual hazardous material shipment volumes by rail, truck, and ship in the SCAG region for the years shown. These data are the most recent available and thus are the most representative of current conditions. (Many goods may travel by two or all three modes while transiting the SCAG region.)

Table 3.10-1: Hazardous Material Shipment Rates in the SCAG Region

Mode	Total Materials Shipped (million tons)	Hazardous Materials Shipped (million tons)	Year
Truck	580.5	46.4	1997
Rail	120	12	2002
Ports	153.7	15.4	2000

Source: Truck: U.S. Department of Transportation, Bureau of Transportation Statistics (BTS). (1997). Commodity flow survey. Washington: Author; and Federal Highway Administration, Office of Motor Carriers. (1996). National Fleet Survey. Washington, DC: Star Mountain, Inc. **Rail:** Southern California Association of Governments. (2002). Los Angeles basin mainline study. Los Angeles: Author; and Alameda Corridor Transportation Authority. (1996, February). Final Environmental Impact Statement. Los Angeles: Author. **Ports:** Port of Los Angeles web site http://www.portoflosangeles.org/statistics/detailstat_year=2000.htm; Port of Long Beach web site http://www.polb.com/html/2_portStats/comparison.html; and Alameda Corridor Transportation Authority. (1996, February). Final Environmental Impact Statement. Los Angeles: Author.

Aside from rail, pipeline, and water shipments, hazardous materials transported through the SCAG region make use of many of the same freeways, arterials, and local streets as other traffic in the region. This creates a risk of accidents and associated release of hazardous materials for other drivers and for people along these routes, as does the use of rail modes for hazardous materials shipments. Figure 3.10-1 shows a map of freight rail routes in the SCAG region.

According to the OHMS's August 1999 Biennial Report on Hazardous Materials Transportation, the highway mode accounts for the largest share of incidents, deaths and injuries associated with hazardous materials transportation. Rail accounts for the next largest portion, followed by air and water modes. Highway incidents also account for the largest share of economic damage among modes. For the years 1990 through 1997, hazardous waste incidents accounted for 3,475 of the national total of 98,749 incidents, or about 3.5% of incidents – an indicator that hazardous waste accounts for a small proportion of both shipments and risk.

OHMS data indicates that hazardous material incidents on highways have exhibited a downward trend since the mid-1990's, while rail incidents have been trending generally downwards since the early 1990's. Hazardous material incidents by air, however, have exhibited a more or less steady increase, while incidents by water show no clear trend. OHMS statistics also indicate that about eighty percent of incidents are the result of human error.[2]

[2] U.S. Department of Transportation. (1999, August). *Biennial report of hazardous materials transportation, calendar years 1996-1997.* Washington, DC: Author.

Hazardous Material Use in Transportation System Maintenance and Construction

Solvents, architectural coatings (paints), and other hazardous materials are used in the construction and maintenance of the transportation system. Their use and storage is regulated by the California Occupational Safety and Health Administration and by local fire departments. Once these materials become wastes, they are regulated by the State Department of Toxic Substances Control. See the Regulatory Setting section below for further discussion.

Contaminated Sites from Prior Hazardous Material Releases

Soil and groundwater can become contaminated by hazardous material releases in a variety of ways, including permitted or illicit use and accidental or intentional disposal or spillage. Before the 1980's, most land disposal of chemicals was unregulated, with the result that numerous industrial properties and public landfills became dumping grounds for unwanted chemicals. The largest and most contaminated of these sites, in general, became federal Superfund sites in the early 1980's, so named for their eligibility to receive cleanup money from a federal fund established for that purpose under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Sites are added to the National Priorities List following a hazard ranking system. The U.S. EPA 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 (Comprehensive Environmental Response, Compensation, and Liability Information System).

Numerous smaller properties also have been designated as contaminated sites. Often these are gas station sites, where leaking underground storage tanks were upgraded under a federal requirement in the late 1980's. Another category of sites, which may have some overlap with the types already mentioned, is brownfields – previously used, often abandoned sites that because of actual or suspected contamination, are undeveloped or underused. Both the U.S. EPA 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. State legislation (SB 32, Escutia) adopted in 2001 establishes a locally-based program to help speed the cleanup and reuse of brownfields sites.

Several California environmental agencies maintain lists of properties that are contaminated or are otherwise associated with the use of hazardous materials, including the following:

- Department of Toxic Substances Control (DTSC; part of the California Environmental Protection Agency [Cal/EPA]):
  - Site Mitigation and Brownfields Reuse Program ("CalSites") list – sites that have known or suspected contamination
  - HazNet list – data on hazardous waste shipments from Hazardous Waste Information System

  - Hazardous Waste and Substances Site List ("Cortese" list) – hazardous materials release locations

- California Integrated Waste Management Board (part of Cal/EPA)
  - Solid Waste Information System – data on open, closed and inactive solid waste disposal facilities and transfer stations

- State Water Resources Control Board (SWRCB; part of Cal/EPA)
  - Leaking Underground Storage Tank list – data for specific parts of the state is also maintained by the Regional Water Quality Control Boards (RWQCB)

- Cal/EPA
  - Annual Work Plan – indicates which sites are targeted for cleanup using state funds.

REGULATORY SETTING

Federal Agencies and Regulations

The USDOT (see 49 CFR Parts 171-180) regulates hazardous materials shipping at the federal level. Congress passed the Hazardous Materials Transportation Act to give authority to the Secretary of Transportation "to provide adequate protection against the risks to life and property inherent in transporting hazardous materials in commerce."

The Research and Special Programs Administration (RSPA) of USDOT issues the hazardous materials regulations. The regulations cover definition and classification of hazardous materials, communication of hazards to workers and the public, packaging and labeling requirements, operational rules for shippers, and training. They apply to interstate, intrastate, and foreign commerce by air, rail, ships, and motor vehicles, and also cover hazardous waste shipments. The Federal Highway Administration is responsible for highway routing of hazardous materials and highway safety permits. The U.S. Coast Guard regulates bulk transport by vessel.

The hazardous material regulations include emergency response provisions, including incident reporting requirements. Reports of major incidents go to the National Response Center, which in turn is linked with CHEMTREC, a service of the chemical manufacturing industry that provides details on most chemicals shipped in the U.S.

Hazardous waste generation, storage, treatment, and disposal is regulated by the U.S. EPA (see 40 CFR Parts 238-282) pursuant to the Resource Conservation and Recovery Act (RCRA). The regulations define hazardous waste: "According to EPA estimates, of the 13 billion tons of industrial, agricultural, commercial, and household wastes generated annually, more than 279

million tons (2 percent) are "hazardous," as defined by RCRA regulations." [3] The regulations specify requirements for generators, including waste minimization methods, as well as for transporters and for treatment, storage, and disposal facilities (also called TSDFs). The regulations include restrictions on land disposal of wastes and used oil management standards.

The principle of RCRA is that hazardous waste be managed "from cradle to grave." To assure this, the regulations require identification for generators and transporters, and permits for TSDFs. The regulations provide mechanisms for tracking waste shipments, such as special hazardous waste manifests that must be used for shipping. The regulations also require financial assurances through closure and post-closure for facilities that accept waste for disposal. The statute and regulations provide for inspection, enforcement, and formal corrective action for facilities that do not live up to the terms of their permits and other requirements. In California, the DTSC is authorized by EPA to implement most of the RCRA regulations.

Contaminated site identification and cleanup activities at the federal level are limited to sites that have been placed on the National Priorities List (the "Superfund" list) due to the hazard they represent. Generally, these are large, extensive, or particularly high-risk sites. The National Contingency Plan (NCP; see 40 CFR 300) includes regulations on removals of hazardous substance releases.

State Agencies and Regulations

Transportation and use of hazardous materials are the concern of several state and local agencies, including Caltrans, which tracks hazardous materials spills at the District level; the California Highway Patrol (CHP), whose Commercial Vehicle Section includes a Motor Carrier/Licensing & HazMat Regulations Unit; and the state Office of Emergency Services, which responds to hazardous materials emergencies in cooperation with local responders. In addition, state law has established Certified Uniform Program Agencies (CUPA), often housed within local fire departments, to oversee local hazardous materials storage, usage, and disposal.

The identification and cleanup, or remediation, of environmentally contaminated properties is regulated by several agencies in California, depending on the size and nature of the site, its past uses, and whether soil or groundwater are impacted. As indicated by the lists given under Environmental Setting, the Cal/EPA, the DTSC, SWRCB, and RWQCBs may all have an interest or role in site cleanup. Generally, the water boards will get involved where groundwater or surface water is impacted by contamination. Cleanup of former military bases may also be managed by a group of agencies, including USEPA and DTSC, regional water boards, and occasionally water districts, and is advised by a local citizens' group called a Restoration Advisory Board.

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[3] United States Environmental Protection Agency. (1997, September). *RCRA: Reducing risk from waste* (*EPA530-K-97-004)*. Retrieved November 5, 2003, from http://www.epa.gov/epaoswer/general/risk/risk.txt

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts from hazardous materials associated with implementation of the proposed Plan. Since shipments are an indicator of risk, as stated by the OHMS, the impact of hazardous materials transportation through the SCAG region was assessed by examining the 2004 RTP's effect on hazardous materials shipments. Specifically, the regional transportation modeling results for goods movement in the region were compared for the various RTP EIR Alternatives. Hazardous materials shipments account for approximately 10% of total rail shipments (based on figures used for planning of a major local rail project) and about 8% of total truck shipments (based on a national figure provided by the Bureau of Transportation Statistics; see Table 3.10-1).

GIS was used to analyze where major freeway, rail, and transit projects in the 2004 RTP come within a one-quarter mile radius of a school. A half-mile buffer (one quarter mile on either side) was drawn around the freeway, rail, and transit projects in the 2004 RTP to compute the number of schools potentially affected by the projects in the 2004 RTP.

Comparison with the No Project

The analysis of hazardous materials includes a comparison between the expected future conditions with the proposed Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the expected effects of the 2004 RTP.

Determination of Significance

The methodology for determining significance applies the significance criteria below to compare the existing conditions to the expected future conditions with the Plan.

SIGNIFICANCE CRITERIA

Criteria for determining significance of impacts were developed from the CEQA Guidelines Appendix G. The proposed Plan would have a significant impact if implementation would:

- Create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during transportation;
- Create a hazard to the public or the environment through the use or disposal of hazardous materials in the construction and maintenance of transportation facilities;
- Emit hazardous materials within one-quarter mile of a school;
- Create a hazard to the public or the environment by the disturbance of contaminated property during the construction of new transportation facilities;
- Cause a cumulatively considerable hazard to the public or the environment.

IMPACTS AND MITIGATION MEASURES

Implementation of the 2004 RTP would affect the transportation and handling of hazardous materials in the SCAG region. The significant impacts include risk of accidental releases due to an increase in the transportation of hazardous materials and the potential for such releases to reach schools within one-quarter mile of transportation facilities affected by the 2004 RTP. Impacts that are less than significant include the use of hazardous materials in transportation system construction, which is well regulated, and direct and cumulative impacts represented by the risk of disturbing previously contaminated property during construction, which can be mitigated. An additional cumulative impact relates to the potential for additional hazardous materials transportation to surrounding counties.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.10-1: The implementation of the 2004 RTP would create a potential hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during transportation. This would be a significant impact.

Implementation of the 2004 RTP would facilitate the movement of goods, including hazardous materials, through the region. For example, by 2030 the RTP includes over 6,700 new mixed-flow, HOV, and arterial lane miles and predicts a substantial increase in vehicle miles traveled (VMT) by trucks, a common mode of hazardous materials transport. In addition, freight rail improvements and other goods movement capacity enhancements are included in the Plan. Transportation of goods in general, and hazardous materials in particular, can thus be expected to increase substantially with implementation of the 2004 RTP. SCAG's transportation demand model indicates, for example, that truck VMT will increase by approximately 70% between 2000 and 2030.

Transportation system improvements in the 2004 RTP would generally improve transportation safety, thus reducing the likelihood of hazardous material transportation incidents. Specific elements in the Plan, such as truck climbing lanes, could be expected to reduce the level of risk posed by hazardous materials transport by separating trucks from other traffic types. This separation should reduce the likelihood of accidents due to the different acceleration rates and driving patterns of heavy trucks compared with other vehicles. (However, the provision of dedicated capacity enhancement facilities might also provide an incentive for even greater goods shipment through the SCAG region, thus potentially offsetting this benefit.) Likewise, the imposition of tolls or fees to help finance dedicated capacity enhancement facilities may induce the transfer of some freight, including hazardous materials, to rail rather than truck. Federal

statistics, however, show that hazardous materials incidents are much less common by rail than on highways.[4]

Mitigation Measures

MM 3.10-1a: SCAG shall encourage the USDOT, the Office of Emergency Services, and the Caltrans to continue to conduct driver safety training programs and encourage the private sector to continue conducting driver safety training.

MM 3.10-1b: SCAG shall encourage the USDOT and the CHP to continue to enforce speed limits and existing regulations governing goods movement and hazardous materials transportation.

Significance after Mitigation

The improvements to the regional transportation system by 2030 would facilitate a substantial increase in the transportation of all goods, including hazardous materials. Even with the above mitigation, this impact would remain **significant**.

Impact 3.10-2: The implementation of the 2004 RTP would create a potential hazard to the public or the environment through the use or disposal of hazardous materials in the construction and maintenance of transportation facilities.

The construction and maintenance of transportation facilities included in the 2004 RTP would involve the use of hazardous materials such as solvents, paints and other architectural coatings. The use and storage of these materials will be regulated by local fire departments, CUPAs, and the California Division of Occupational Safety and Health. Materials left over from construction projects can likely be re-used on other projects. For materials that cannot be or are not reused, disposal would be regulated by the DTSC under state and federal hazardous waste regulations. With these regulations in place, this impact is expected to be **less than significant**.

Mitigation Measures

None required.

Significance after Mitigation

The impact is **less than significant**.

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[4] U.S. Department of Transportation. (1999, August). *Biennial report of hazardous materials transportation, calendar years 1996-1997.* Washington, DC: Author.

Impact 3.10-3: Implementation of the 2004 RTP would result in the potential release of hazardous materials within one-quarter mile of schools.

The results of the GIS analysis show that the 2004 RTP projects analyzed would occur within one-quarter mile of approximately 746 schools. Hazardous materials carried on these roadways could affect these schools if there were to be a release or incident during transportation.

The 2004 RTP includes funding for many new arterial projects and modifications to existing arterial projects that were not specified precisely enough to be included in the GIS analysis. The 2004 RTP also includes capacity enhancements and the Maglev system, whose alignments have not been finalized. However, construction and operation of the arterials, capacity enhancements, and Maglev system could cause additional effects on schools in the region, and numerous schools would be within one-quarter mile of these projects. This impact is considered to be significant.

Mitigation Measures

MM 3.10-3a: SCAG shall encourage the USDOT, the Office of Emergency Services, and Caltrans to continue to conduct driver safety training programs and encourage the private sector to continue conducting driver safety training.

MM 3.10-3b: SCAG shall encourage the USDOT and the CHP to continue to enforce speed limits and existing regulations governing goods movement and hazardous materials transportation.

MM 3.10-3c: Prior to approval of any RTP project, the Lead Agency for each individual project shall consider existing and known planned school locations when determining the alignment of new transportation projects and modifications to existing transportation facilities.

Significance after Mitigation

The transportation of hazardous materials within one-quarter mile of schools would remain a **significant** impact, even with the above mitigation.

Impact 3.10-4: Implementation of the 2004 RTP would create a potential hazard to the public or the environment by the disturbance of contaminated property during the construction of new or the expansion of existing transportation facilities.

Construction of the projects in the 2004 RTP could involve construction through or next to sites that have become contaminated due to past chemical use or disposal. In the two decades since federal and state laws were adopted providing for remediation of these sites, it is likely that the majority of contaminated sites have been identified. It is relatively unlikely that construction of new facilities or expansion of existing facilities will encounter previously unidentified contaminated properties. This impact is considered significant before mitigation.

Mitigation Measures

3.10-4a: Prior to approval of any RTP project, the project implementation agency shall consult all known databases of contaminated sites in the process of planning, environmental clearance, and construction for projects included in the 2004 RTP. Where contaminated sites are identified, the project implementation agency shall develop appropriate mitigation 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.

Significance after Mitigation

The mitigation measure would assure that contaminated properties are identified and appropriate steps taken to minimize human exposure and prevent any further environmental contamination. The impact after mitigation would be **less than significant**.

Cumulative Impacts

A cumulative impact consists of an impact which is created as a result of the combination of the 2004 RTP together with other projects causing related impacts.

The 2030 transportation model includes the population, households, and employment projected for 2030, and therefore the largest demand on the transportation system expected during the lifetime of the 2004 RTP. In accounting for the effects of regional population growth, the model output provides a regional, long-term and cumulative level of analysis for the impacts of the 2004 RTP on transportation resources. **Forecast urban development and growth that would be accommodated by the transportation investments in the 2004 RTP, together with the increased mobility provided by the 2004 RTP would contribute to the significant impacts described in Impacts 3.10-1 and 3.10-3 above.** The regional growth, and thus cumulative impacts, are captured in the heavy-duty truck VMT data considered in this chapter.

In addition to the impacts described above, the urban development and growth that would be accommodated by the transportation investments in the 2004 RTP would have the following additional cumulative impacts:

Cumulative Impact 3.10-5: The 2004 RTP would contribute a cumulatively significant amount of hazardous material transportation impacts to counties outside of the SCAG region.

As the population increases through 2030, the number of trips originating and ending in Santa Barbara, San Diego and Kern counties to and from the SCAG region would increase, including trips involving the transportation of hazardous materials. The contribution to these trips in the SCAG region would contribute to significant hazardous material transportation impacts in these other counties.

Mitigation Measures

The projects and measures designed to minimize VHT and VMT that are included in the 2004 RTP as well as Mitigation Measures 3.3-1a, 3.4-1a, and 3.4-1b, would minimize this effect.

Significance after Mitigation

Even with the above mitigation, the regional contribution would remain **significant.**

Cumulative Impact 3.10-6: Implementation of the investments and policies in the 2004 RTP would create a potential hazard to the public or the environment by the disturbance of contaminated sites as a result of population and housing growth in the region.

The 2004 RTP's influence on mobility and its land use-transportation measures would influence population distribution, potentially contributing to a cumulatively considerable impact related to disturbance of contaminated sites by new urban development. With additional pressure for infill development, reuse of "brownfields" properties may become more common as the region grows.

Mitigation Measures

MM 3.10-6a: As with new or expanded transportation projects, planners and private developers can and should check published lists of contaminated properties, which are continually updated, to identify cases where new development would involve the disturbance of contaminated properties.

Significance after Mitigation

With the use of these published lists, this impact should be less than cumulatively considerable and therefore **less than significant** with mitigation.

Comparison with the No Project

In the No Project Alternative, the regional population is projected to be the same as for the Plan Alternative, but no regional transportation investments would be made beyond the existing programmed projects. The population distribution is assumed to follow past trends, uninfluenced by additional transportation investments.

Direct Impacts

The No Project Alternative would result in the construction of only about 1,500 new lane miles, compared with over 6,700 new lane miles in the Plan Alternative. The No Project Alternative would also omit construction of capacity enhancements and the Maglev system and involve fewer transit improvements than the Plan Alternative. As a result, new transportation projects in the No

Project Alternative would be within a quarter-mile radius of only 290 schools, 456 less than the Plan Alternative.

Because there would be fewer projects built, the No Project Alternative could result in a smaller increase in the movement of hazardous materials around the SCAG region and therefore in the associated risks. However, without the transportation system improvements incorporated in the 2004 RTP, vehicle miles traveled and vehicle hours of delay would increase more by 2030 for the No Project Alternative than for the Plan Alternative. Thus there would be more opportunities for accidents with vehicles transporting hazardous materials in the No Project Alternative than in the Plan Alternative. Also, with fewer new roadways constructed, hazardous materials transport would be concentrated on existing routes, and could not be diverted to dedicated lanes. In general, the Plan impacts would be greater than the No Project impacts for Impacts 3.10-1, 3.10-2, 3.10-3, and 3.10-4.

Cumulative Impacts

With the construction of fewer new lane miles and other transportation projects in the No Project Alternative compared to the Plan, more transportation demand would be transferred to surrounding counties, and therefore more hazardous materials transportation would be facilitated in these counties. Thus, the No Project impacts would be greater than the Plan impacts for Cumulative Impact 3.10-5.

The Plan Alternative assumes the use of urban form strategies that would encourage greater property reuse and more infill development than under the No Project Alternative. Thus it is more likely that previously contaminated sites would be encountered under the Plan Alternative than the No Project. Therefore, the No Project impacts would be less than the Plan impacts for Cumulative Impact 3.10-6.

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3.11 ENERGY

INTRODUCTION

This section describes existing energy consumption and trends within the SCAG region, identifies the potential impacts of the RTP on energy consumption, includes mitigation measures for the impacts, and evaluates the residual impacts.

ENVIRONMENTAL SETTING

Energy Types, Sources and Providers

Petroleum products supply approximately 39 percent of the energy demand in the U.S.[1] Natural gas supplies about 24 percent and coal about 23 percent of the national energy demand, nuclear about 8 percent and renewable sources about 6 percent. Current annual energy consumption in the U.S. is approximately 97 quadrillion British thermal units (Btu)[2], which represents approximately one-quarter of the world's energy consumption.[3]

Petroleum and natural gas supply most of the energy consumed in California. In 2001, petroleum products provided approximately 42 percent of the state's energy demand, and natural gas provided approximately 27 percent.[4] The remaining 31 percent of the state's energy demand was met by a variety of energy resources, including coal, nuclear, geothermal, wind, solar, and hydropower. Current annual energy consumption in California (for all purposes, including transportation) is approximately 8.4×10^{15} Btu, which represents approximately 4 percent of the nation's total energy consumption. California consumes more energy than any other state in the

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1 United States Department of Energy, Energy Information Administration. (2002, October 26). *Annual energy review 2001 – Energy flow*. Retrieved July 31, 2003, from http://www.eia.doe.gov/emeu/aer/diagrams/diagram1.html.

2 The units of energy used in this report are British Thermal Units (Btu), kilowatt-hours (kWh), therms, and gallons. A Btu is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at sea level. Since the other units of energy can all be converted into equivalent Btu units, the Btu is used as the basis for comparing energy consumption associated with different resources. A kWh is a unit of electrical energy, and one kWh is equivalent to approximately 10,200 Btu, taking into account initial conversion losses (i.e., from one type of energy, e.g., chemical, to another type of energy, e.g., mechanical) and transmission losses. Natural gas consumption typically is described in terms of cubic feet or therms; one cubic foot of natural gas is equivalent to approximately 1,050 Btu, and one therm represents 100,000 Btu. One gallon of gasoline/diesel is equivalent to approximately 140,000 Btu, taking into account energy consumed in the refining process.

3 United States Department of Energy, Energy Information Administration. (2003, May 1). *International energy outlook 2003*. Retrieved July 31, 2003, from http://www.eia.doe.gov/oiaf/ieo/tbl_1.html.

4 California Energy Commission (personal communication, March 25, 2003).

U.S., except for Texas.[5] However, in terms of energy consumption per person, California ranks 48th among the 50 states.

Petroleum

Most gasoline and diesel fuel sold in California for on-road motor vehicles is refined in California to meet state-specific formulations required by the Cal/EPA's Air Resources Board. Major petroleum refineries in California are concentrated in three counties: Contra Costa County in northern California, Kern County in central California, and Los Angeles County in southern California. In Los Angeles County, petroleum refineries are located mostly in the southern portion of the county.

In 2001, refineries in California processed approximately 655 million barrels of crude oil.[6] Almost half of the crude oil came from in-state oil production facilities; 21% came from Alaska; and the remaining (approximately 29 percent) came from foreign sources. The long-term oil supply outlook for California remains one of declining in-state and Alaska supplies leading to increasing dependence on foreign oil sources.

In the last fifty years, the human population has doubled, and the number of cars has grown tenfold from 50 to 500 million. As Americans continue to consume oil, oil demand could eventually outstrip oil supplies. By 2010, the world may be consuming as much as 90 million barrels per day, 20% more than it does now. The analyses of geophysicist M. King Hubbert suggest that one new barrel of oil is being found for every four barrels being consumed.[7] Hubbert predicted that sometime between 2005 and 2025, world oil production would reach a peak and begin a sharp decline. However, a government summary of several world oil price forecasts for 2025 does not indicate a steep increase in petroleum prices.[8]

Natural Gas

Eighty-five percent of the natural gas consumed in California comes from the Southwestern U.S., the Rocky Mountains, and Canada.[9] The remainder is produced in California. In the SCAG

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[5] United States Department of Energy, Energy Information Administration. (n.d.). *Table 1.6: State-level energy consumption, expenditures, and prices, 1999*. Retrieved July 31, 2003, from http://www.eia.doe.gov/emeu/aer/txt/ptb0106.html.

[6] California Energy Commission. (2003, May 5). *Oil and petroleum in California*. Retrieved July 31, 2003, from http://www.energy.ca.gov/oil/index.html.

[7] Udall, R. and Andrews, S. (1999, January). When will the joy ride end? A petroleum primer. *Hubbert Center Newsletter, 99(1)*, 1-8.

[8] United States Department of Energy, Energy Information Administration. (n.d.). Table 15: Comparison of World Oil Price Projections, 2005-2025. Retrieved December 8, 2003, from http://www.eia.doe.gov/oiaf/ieo/tbl_15.html

[9] California Energy Commission. (2003, July 23). *California's major sources of energy*. Retrieved July 31, 2003, from http://www.energy.ca.gov/html/energysources.html.

region, more than a third of the natural gas consumed in 2000 was used to generate electricity. Residential consumption represented about 22% of natural gas use with the balance consumed by the industrial, resource extraction, and commercial sectors.[10]

Southern California Gas Company, a privately owned utility company, provides natural gas service throughout the SCAG region, except for the City of Long Beach, the southern portion of Orange County, and portions of San Bernardino County. The service area for Long Beach Energy, a municipal utility and natural gas supplier owned and operated by the City of Long Beach, includes the cities of Long Beach and Signal Hill, and sections of surrounding communities, including Lakewood, Bellflower, Compton, Seal Beach, Paramount, and Los Alamitos. San Diego Gas & Electric Company provides natural gas service to the southern portion of Orange County. In San Bernardino County, Southwest Gas Corporation provides natural gas service to Victorville, Big Bear, Barstow, and Needles.

Electricity

Assembly Bill 1890, which was signed into law in 1996, attempted to restructure California's electricity market. Flaws in the market design combined with natural gas supply shortages and a number of other factors to produce an energy crisis in the state that resulted in numerous rolling blackouts, huge electricity price spikes, and bankruptcy or near-bankruptcy for two of the state's private utilities. The legislature responded by rescinding much of the deregulation scheme, creating a new state power authority, and enacting emergency energy conservation measures, mostly in the form of rebates and incentives. Currently, it is not clear whether lawmakers will choose to try again with a restructured market, or return to the former regulated market. This uncertainty has deterred many private investors from pursuing energy projects, meaning that the state's, and the region's, future energy supply is far from assured.

Power plants in California meet approximately 85 percent of the in-state electricity demand. Hydroelectric power from the Pacific Northwest provides another 2.6 percent, down due to drought conditions in recent years, and power plants in the southwestern U.S. provide another 13 percent.[11] The relative contribution of in-state and out-of-state power plants depends upon, among other factors, the precipitation that occurred in the previous year and the corresponding amount of hydroelectric power that is available. Two of the largest power plants in California are located in the SCAG region: Alamitos and Redondo Beach. Both of these plants consume natural gas. San Onofre, the state's largest power plant in terms of net capability, is nuclear powered and is located just south of the SCAG region in San Diego County.

Local electricity distribution service is provided to customers within the SCAG region by one of two privately owned utilities – either Southern California Edison Company or San Diego-based

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10 California Gas Utilities. (n.d.). *2000 California gas report*. Retrieved July 31, 2003, from Southern California Gas Company Web site: http://www.socalgas.com/regulatory/docs/2000report.pdf.

11 California Energy Commission. (2003, July 23). *California's major sources of energy*. Retrieved July 31, 2003, from http://www.energy.ca.gov/html/energysources.html

Sempra Energy – or by a publicly-owned utility, such as the Los Angeles Department of Water and Power and the Imperial Irrigation District. Southern California Edison is the largest electricity utility in southern California with a service area that covers all or nearly all of Orange, San Bernardino, and Ventura Counties, and most of Los Angeles and Riverside Counties. Southern California Edison Company provides approximately 70 percent of the total electricity demand in the SCAG region. Sempra Energy provides local distribution service to the southern portion of Orange County.

The Los Angeles Department of Water and Power is the largest of the publicly owned electric utilities in southern California. Los Angeles Department of Water and Power provides electricity service to most customers located in the City of Los Angeles and provides approximately 20 percent of the total electricity demand in the SCAG region. Other cities that operate their own electric utilities in the SCAG region include Burbank, Glendale, Pasadena, Azusa, Vernon, Anaheim, Riverside, Banning, and Colton. Two water districts provide local electric service within the SCAG region: Imperial Irrigation District and Southern California Water Company. Imperial Irrigation District provides electricity to customers in Imperial County and the Coachella Valley portion of Riverside County. Southern California Water Company provides electric service to the community of Big Bear. Anza Electric Cooperative provides local distribution service to the Anza Valley area of southern Riverside County.

Consumptive Uses

Consumptive uses of energy in the SCAG region are summarized in Table 3.11-1 for the years indicated. These data are the most recent available in each case and are therefore the most representative of current conditions.

Transportation

Transportation, i.e., the movement of people and goods from place to place, is an important end use of energy in California, accounting for approximately 40 percent of total statewide energy consumption in 2001.[12] Nonrenewable energy products derived from crude oil, including gasoline, diesel, kerosene, and residual fuel, provide most of the energy consumed for transportation purposes by on-road motor vehicles (i.e., automobiles and trucks), locomotives, aircraft, and ships. In addition, energy is consumed in connection with construction and maintenance of transportation infrastructure, such as highways, locomotives, runways, and berths. Trends in transportation-related technology foretell increased use of electricity and natural gas for transportation purposes.

Transportation energy is derived from a wide variety of petroleum products. Automobiles and trucks consume gasoline and diesel fuel. Turbine aircraft consume kerosene fuel; locomotives consume diesel fuel; and ships consume residual fuel oil. The transportation sector consumes relatively minor amounts of natural gas or electricity, but, propelled mainly by air quality laws and

[12] California Energy Commission (personal communication March 25, 2003).

Table 3.11-1: Annual Transportation Energy Consumption in the SCAG Region for Base Years as Indicated

Category	Fuel Type	Year	Consumption	Units
Motor Vehicles	Gasoline/Diesel	1997	6,091,080	thousand gallons
	Natural Gas	2000	33	million therms
Aircraft	Kerosene (Jet A)	2001	1,266,806	thousand gallons
Locomotives	Diesel	2000	177,611	thousand gallons
Ships	Residual Fuel	2000	386,631	thousand gallons
on Btu basis:				
Motor Vehicles	Gasoline/Diesel	1997	852,751,179	million Btu
	Natural Gas	2000	3,300,000	million Btu
Aircraft	Kerosene (Jet A)	2001	171,018,856	million Btu
Locomotives	Diesel	2000	24,865,594	million Btu
Ships	Residual Fuel	2000	57,994,646	million Btu

NOTE: As of the base year, electricity does not supply a significant portion of transportation energy needs in the SCAG region.

Sources: California Energy Commission. (2000, June). *California energy demand 2000-2010*. Sacramento, CA: Author.

Port of Los Angeles. (2001). *2000 statistics*. Retrieved July 31, 2003, from http://www.portoflosangeles.org/statistics/detailstat_year=2000.htm

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A. Thompson (personal communication, April 11, 2003)

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United States Department of Energy, Energy Information Administration. (n.d.). *Table 13: Adjusted sales of distillate fuel oil by energy use in the United States: 1997-2001*. Retrieved August 11, 2003, from http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/fuel_oil_and_kerosene_sales/current/pdf/table13.pdf

United States Department of Energy, Energy Information Administration. (n.d.). *Table 14: Adjusted sales of residual fuel oil by energy use in the United States: 1997 - 2001*. Retrieved August 11, 2003, from http://www.eia.doe.gov/pub/oil_gas/petroleum/data_publications/fuel_oil_and_kerosene_sales/current/pdf/table14.pdf

regulations, technological innovations in transportation are expected to increasingly rely on compressed natural gas and electricity as energy sources. Biodiesel, derived from plant sources such as used vegetable oils, is a small but growing source of transportation fuel. Vehicles powered by fuels other than gasoline or diesel are referred to as "alternative fuel vehicles."

Roadways

Energy consumption by on-road motor vehicles reflects the types and numbers of vehicles, the extent of their use (typically described in terms of VMT), and their fuel economy (typically described in terms of miles per gallon). Trends in energy consumption by on-road motor vehicles generally follow trends in population and per capita income as well as trends in land use development patterns. For example, diffuse land use development patterns can result in an imbalance between jobs and housing, which can lead to longer average commute trips.

Airports

As shown in Table 3.11-1, kerosene (Jet A) consumption in the SCAG region for transportation purposes represents approximately 15 percent of total transportation energy consumption. The SCAG region includes 64 airports including 8 commercial or primary airports, 9 metropolitan airports, 19 regional airports, 10 community airports, 8 limited use airports, two joint-use military and commercial airports, and 8 airports operated by the military or by the National Aeronautics and Space Administration.[13] The 8 commercial or primary airports in the SCAG region include Los Angeles International Airport, Bob Hope Airport, and Long Beach Airport in Los Angeles County; John Wayne Airport in Orange County; Ontario International Airport in San Bernardino County; Palm Springs International Airport in Riverside County; Oxnard Airport in Ventura County, and Imperial County Airport in Imperial County.

In 2001, passenger activity at these airports was approximately 82 million passengers, which is approximately 6 percent of the nation's total air passenger traffic. The SCAG region's consumption of aviation kerosene was estimated by applying this ratio to total U.S. commercial aviation fuel consumption as reported by the Federal Aviation Administration.[14]

Ports

Table 3.11-1 also includes energy consumption estimates for locomotives and ships. Locomotive consumption of diesel fuel in the SCAG region was estimated by applying the ratio of the population in the region over the total U.S. population to nation-wide estimates of diesel fuel consumption by railroad operations. Residual fuel (Bunker "C") consumption by ships in the SCAG region was estimated by applying the ratio of waterborne traffic (in millions of short tons)

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[13] California Department of Transportation. (1998). *The California aviation system plan, 1998*. Sacramento, CA: Author.

[14] United States Department of Transportation, Federal Aviation Administration. (n.d.). *Table 22: Total jet fuel and aviation gasoline fuel consumption, U.S. civil aviation aircraft*. Retrieved August 11, 2003, from http://apo.faa.gov/foreca00/actab22.pdf.

associated with Long Beach and Los Angeles Ports[15] over total national waterborne traffic[16] to nation-wide estimates of residual fuel consumption for vessel bunkering. Together, locomotives and ships represent approximately 7 percent of the transportation energy consumption in the SCAG region.

Residential, Commercial, Industrial, and Other Uses

Major energy consumption sectors (in addition to transportation) include residential, commercial, industrial uses as well as street lighting, mining, and agriculture. Unlike transportation, these sectors primarily consume electricity and natural gas. Total annual electricity consumption in the SCAG region is approximately 123,500 million kilowatt hours (kWh),[17] which is equivalent to approximately 1,259,700 billion Btu, taking into account conversion and transmission losses. The residential, commercial, and industrial sectors account for approximately 29, 46, and 21 percent, respectively, of total regional electricity consumption. The agricultural sector accounts for another 4 percent. Within the residential sector, lighting, small appliances, and refrigeration account for most (approximately 60 percent) of the electricity consumption, and within the industrial and commercial sector, lighting, motors, and air cooling account for most (approximately 65 percent) of the electricity consumption.

Electricity use by households varies depending on the local climate and on the housing type (i.e., single-family vs. multi-family). Table 3.11-2 summarizes average monthly per-household electricity use for both housing types for four distinct geographic zones in the SCAG region: the cooler and more temperate coastal zone, an inland valley zone and desert zone where temperatures are more extreme, and the state's Central Valley (few SCAG households fall into this zone).

Table 3.11-2: Average Monthly Household Electricity Usage

Planning Area	Single Family (kWh/month)	Multi-Family (kWh/month)
Central Valley	645	410
Coastal	532	309
Inland Valley	557	323
Desert	637	373

Source: Southern California Edison, personal communication, August 29, 2003.

15 Port of Long Beach. (n.d.). *Monthly tonnage summary*. Retrieved July 31, 2003, from http://polb.com/html/2_portStats/tonnage.html and Port of Los Angeles. (2001). *2000 statistics*. Retrieved July 31, 2003, from http://www.portoflosangeles.org/statistics/detailstat_year=2000.htm.

16 United States Army Corps of Engineers. (2002, February 28). *Civil works program statistics* (Information Paper CECW-ZD). Washington, DC: Author.

17 California Energy Commission. (2001, September). California energy demand forecast. Sacramento, CA: Author.

Total annual natural gas (end use) consumption in the SCAG region is approximately 6,555 million therms,[18] which is equivalent to approximately 6,555,000 billion Btu. The residential, commercial, and industrial sectors account for approximately 38, 14, and 49 percent, respectively, of total regional natural gas (end use) consumption. Space and water heating account for approximately 61 percent of residential natural gas consumption and approximately 42 percent of commercial natural gas consumption.

Consumption Reduction Efforts

Most of the utilities that provide electric and natural gas service also administer energy conservation programs. These programs typically include home energy audits; incentives for replacement of existing appliances with new, energy-efficient models; provision of resources to inform businesses on development and operation of energy-efficient buildings; and construction of infrastructure to accommodate increased use of motor vehicles powered by natural gas or electricity.

REGULATORY SETTING

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the USDOT, U.S. Department of Energy, and USEPA are three agencies with substantial influence over energy policies and programs. Generally, federal agencies influence transportation energy consumption through establishment and enforcement of fuel economy standards for automobiles and light trucks, through funding of energy-related research and development projects, and through funding for transportation infrastructure projects.

On the state level, the California Public Utilities Commission, California Energy Commission, and California Power Authority are the main agencies with authority over different aspects of energy. The California Public Utilities Commission regulates privately owned utilities in the energy, rail, telecommunications, and water fields. The California Energy Commission collects and analyzes energy-related data, prepares statewide energy policy recommendations and plans, promotes and funds energy efficiency programs, and regulates the power plant siting process. The California Power Authority, established after statewide electricity and natural gas shortages and price shocks in 2000 and 2001, is responsible for ensuring a sufficient surplus of electricity in the state. California is preempted under federal law from setting state fuel economy standards for new on-road motor vehicles. Some of the more relevant federal and state transportation-energy-related laws and plans are discussed below.

Federal Regulations

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 sought to ensure that all vehicles sold in the U.S. would meet certain fuel economy goals. Through this Act, Congress established the first

[18] California Energy Commission. (n.d.). *Quarterly fuel and energy report*. Sacramento, CA: Author.

fuel economy standards for on-road motor vehicles in the U.S. Pursuant to the Act, the National Highway Traffic and Safety Administration, which is part of the USDOT, is responsible for establishing additional vehicle standards and for revising existing standards. Since 1990, the fuel economy standard for new passenger cars has been 27.5 miles per gallon. Since 1996, the fuel economy standard for new light trucks (gross vehicle weight of 8,500 pounds or less) has been 20.7 miles per gallon. Heavy-duty vehicles (i.e., vehicles and trucks over 8,500 pounds gross vehicle weight) are not currently subject to fuel economy standards.

Compliance with federal fuel economy standards is determined on the basis of each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the U.S. The Corporate Average Fuel Economy (CAFE) program, which is administered by USEPA, was created to determine vehicle manufacturers' compliance with the fuel economy standards. USEPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. Based on the information generated under the CAFE program, the USDOT is authorized to assess penalties for noncompliance.

Intermodal Surface Transportation Efficiency Act

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of intermodal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that MPOs, such as SCAG, were to address in developing transportation plans and programs, including some energy-related factors. To meet the ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values that were to guide transportation decisions in that metropolitan area. The planning process was then to address these policies. Another requirement was to consider the consistency of transportation planning with federal, state, and local energy goals. Through this requirement, energy consumption was expected to become a decision criterion, along with cost and other values that determine the best transportation solution.

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 alternative fuel vehicles (AFVs) and building a local AFV refueling infrastructure.[19] The Clean Cities Program has created more than 70 partnerships in communities throughout the country. Six of these partnerships have been established in the SCAG region: Antelope Valley, Coachella Valley, Long Beach, Los Angeles, Northwest Riverside, and one administered by SCAG.

[19] United States Department of Energy. (1999, January). *Clean cities game plan 1999: Strategic plan for the clean cities program*. Washington, DC: Author.

State Regulations and Policies

State of California Integrated Energy Policy Report

In 2002, the Legislature reconstituted the State's responsibility to develop an integrated energy plan for electricity, natural gas, and transportation fuels. On November 1, 2003, and every two years thereafter, the California Energy Commission, in consultation with other State energy agencies, must provide an overview of the major energy trends and issues facing California, including supply, demand, price, reliability, and efficiency. It must assess the impacts of these trends and issues on public health and safety, the economy, resources, and the environment. Finally, it must make policy recommendations to the Governor and the Legislature that are based on an in-depth and integrated analysis of the most current and pressing energy issues facing the State.[20]

Reducing California's Petroleum Dependence

The California Energy Commission and the California Air Resources Board produced a joint report *Reducing California's Petroleum Dependence* to highlight petroleum consumption and to establish a performance based goal to reduce petroleum consumption in California over the next thirty years. The report includes the following recommendations to the Governor and Legislature regarding petroleum:[21]

- 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.
- 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 sport utility vehicles.
- 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.

The California Energy Commission will use these recommendations when developing its series of recommendations to the Governor and Legislature for the integrated energy plan for electricity, natural gas, and transportation fuels.

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[20] California Energy Commission (personal communication March 25, 2003).

[21] California Energy Commission and California Air Resources Board. (2003, August). *Reducing California's petroleum dependence* (Publication P600-03-005F). Retrieved August 26, 2003, from http://www.energy.ca.gov/reports/2003-08-14_600-03-005.PDF.

Renewables Portfolio Standard

California's renewables portfolio standard (RPS) requires retail sellers of electricity to increase their procurement of eligible renewable energy resources by at least 1 percent per year so that 20 percent of their retail sales are procured from eligible renewable energy resources by 2017.[22] If a seller falls short in a given year, they must procure more renewables in succeeding years to make up the shortfall. Once a retail seller reaches 20%, they need not increase their procurement in succeeding years. The Standard was enacted via SB 1078 (Sher), signed September 2002 by Governor Davis. The California Energy Commission and the California Public Utilities Commission are jointly implementing the standard.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts of implementation of the proposed Plan on energy consumption and associated environmental effects. Estimated energy consumption in 2030 is expected to represent the most conservative (i.e., highest) energy consumption because population and employment are projected to be higher in this year than in any earlier year. Also, no estimate is made of the impact of energy efficiency and conservation measures which are likely to be adopted, resulting in energy consumption lower than that projected in this chapter.

Expected direct, transportation energy consumption was estimated for 2030 using SCAG's regional transportation demand model and the EMFAC/BURDEN air quality model, which provides estimated gasoline and diesel fuel consumption for the 2004 RTP and Alternatives. Energy consumption for the other elements of the transportation plan (Maglev, transit, etc.) was also estimated and evaluated.

Expected future residential energy consumption was estimated using average monthly energy consumption figures, provided by Southern California Edison, for single- and multi-family dwelling units in four different climate zones: Central Valley, Coastal, Inland Valley, and Desert (see Table 3.11-2). These figures were multiplied by SCAG's projected single- and multi-family household counts to provide a comparison of total residential energy consumption for the various Alternatives.[23]

Comparison with the No Project

The analysis of energy resources includes a comparison between the expected future conditions with the proposed Plan and the expected future conditions if no Plan were adopted. This

[22] Under the bill, publicly-owned utilities must have a renewables portfolio standard but are not subject to the percentage requirements and time limits.

[23] Average monthly consumption reflecting current usage was used with household estimates for 2030, since no projected future average monthly consumption rate was available from Edison.

evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the expected effects of the 2004 RTP.

Determination of Significance

The methodology for determining the significance of energy impacts compares existing conditions to the expected future energy consumption with the Plan, as required in CEQA Guidelines Section 15126.2(a). Criteria below were applied to compare current energy usage to expected future (2030) Plan conditions.

SIGNIFICANCE CRITERIA

A *significant impact* is defined as "a substantial or potentially substantial, adverse change in the environment" (Public Resources Code §21068). The proposed Plan would have a significant impact if implementation would potentially:

- Substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other non-renewable energy types between the current conditions and 2030;
- Use substantial amounts of electricity and natural gas, thereby requiring the construction of new facilities and sources of energy or major improvements to local infrastructure;
- Cause a cumulatively considerable increase in energy consumption and associated environmental effects; or
- Cause the use of large amounts of electricity and natural gas in a wasteful manner.

IMPACTS AND MITIGATION MEASURES

Implementation of the 2004 RTP would affect the use of energy resources in the SCAG region. The analysis of these impacts is at the regional level and is therefore by its nature an analysis of cumulative impacts. Three main areas of impact have been identified: energy demands for construction and expansion of the regional transportation system; energy demands for operation of the regional transportation system as of 2030; and the cumulative impacts of growing energy demand associated with implementation of the 2004 RTP.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.11-1: The implementation of the 2004 RTP is likely to use electricity, natural gas, gasoline, diesel, or other non-renewable energy types in the construction and expansion of the regional transportation system. This would be a less-than-significant impact.

Construction of the new elements of the regional transportation system included in the 2004 RTP will likely involve the use of diesel-powered heavy equipment, portable diesel generators, and other battery-operated support equipment, as well as electricity from the existing grid. There would be an irreversible impact from the consumption of diesel fuel (and other fuels) related to these construction activities. However, the 2004 RTP does not contemplate an increase in the amount of regional transportation system construction beyond current, ongoing levels of transportation system construction. Thus, it is unlikely that the energy demands of construction of the new elements of the regional transportation system would create a noticeable impact to regional energy systems. Therefore, this construction impact would be less than significant.

Mitigation Measures

None.

Significance After Mitigation

The impact is **less than significant.**

Impact 3.11-2: The implementation of the 2004 RTP is likely to substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other non-renewable energy types in the operation of the transportation system between the current conditions and 2030. This would be a significant impact.

Operation of the transportation system as described in the 2004 RTP would involve a substantial increase in the use of petroleum fuels between the current conditions and 2030. Table 3.11-3 summarizes the expected increases in fuel usage, as predicted by SCAG's transportation and air quality model, between 2000 and 2030 with the investments in the RTP and without (the No Project Alternative).

Table 3.11-3. Projected SCAG Region Transportation Fuel Consumption (thousand gallons per day)

Alternative	Gasoline	Percent Increase over Base Year 2000	Diesel	Percent Increase over Base Year 2000	Total	Percent Increase over Base Year 2000
Base Year 2000	19,285.06	--	3,404.59	--	22,689.65	--
2030 No Project	25,038.86	32%	6,397.25	92%	31,436.11	41%
2030 with 2004 RTP	23,354.77	23%	6,574.61	97%	29,929.38	34%

Source: SCAG EMFAC/BURDEN Analysis, 2003

If world fuel supplies drop and prices increase dramatically, the cost of owning and maintaining a conventional vehicle could also increase. To help reduce the possible effects of this situation,

greater use of alternative fuels, public transit, and non-motorized transportation options must be encouraged. The mitigation measures listed below would help to further reduce petroleum and diesel demand in the SCAG region.

In addition to increased use of petroleum fuels, projects in the 2004 RTP would be expected to consume natural gas and electricity. Street lighting for new highways and arterials and nighttime lighting for rail projects would consume electricity. New transit vehicles and transit stations for Maglev, Metrolink, light rail and rapid bus would require electricity and natural gas during project operation. In response to air quality concerns, it is likely that in the future more buses would use natural gas instead of petroleum-based fuels for daily operations. The implementation of mitigation measures identified below would reduce the significance of these impacts.

Maglev would also use electricity for operation. Maglev trains are powered by electricity and elevated electromagnetically along a track. According to the Maglev environmental assessment performed in March 2000, power requirements would vary depending on the number of operating trains, their time of operation, their operating speed, number of passengers per train, and several other factors.[24] For a single train, energy consumption is anticipated to be approximately 2,412 million Btu on a single day with an annual consumption of 745,300 million Btu. The Maglev stations are assumed to consume approximately 10% of what a single train would consume. Therefore, one train and one station are anticipated to consume approximately 2,653 million Btu in a day and 819,832 million Btu annually.[25]

Mitigation Measures

In addition to the mitigation measures specified below, mitigation measures for the impacts of transportation system usage would serve to mitigate the impacts of growing transportation energy demand. In particular, Mitigation Measures **MM 3.3-1a, MM 3.4-1a and MM 3.4-1b** would contribute to energy impact mitigation.

MM 3.11-2a: Project implementation agencies shall review energy impacts as part of project-specific environmental review as required by CEQA. For any identified impacts, appropriate mitigation measures should be identified. The project implementation agency or local jurisdiction shall be responsible for ensuring adherence to the mitigation measures.

MM 3.11-2b: For any project anticipated to require substantial electrical usage, the project implementation agency shall submit projected electricity and natural gas demand calculations to the local electricity or natural gas provider, respectively, for its analysis. Any infrastructure improvements necessary for project construction shall be completed according to the specifications of the energy provider.

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24 Parsons, (2000, March 1), *Environmental Assessment for Maglev*.

25 *Ibid.*

MM 3.11-2c: Transit providers shall, as feasible, assure that designers of new transit stations incorporate solar panels in roofing and tap other renewable energy sources to offset new demand on conventional power sources.

MM 3.11-2d: SCAG shall encourage state and federal lawmakers and regulatory agencies to pursue the design of programs to either require or incentivize the expanded availability and use of alternative-fuel vehicles to reduce the impact of shifts in petroleum fuel supply and price.

Significance After Mitigation

The regional increase in transportation-related energy demand as a result of implementing the 2004 RTP would remain a **significant** impact, even with the above mitigation.

Cumulative Impacts

A cumulative impact consists of an impact which is created as a result of the combination of the 2004 RTP together with other projects causing related impacts.

The 2030 transportation model includes the population, households, and employment projected for 2030, and therefore the largest demand on the transportation system expected during the lifetime of the 2004 RTP. In accounting for the effects of regional population growth, the model output provides a regional, long-term and cumulative level of analysis for the impacts of the 2004 RTP on transportation resources. **Forecast urban development and growth that would be accommodated by the transportation investments in the 2004 RTP, together with the increased mobility provided by the 2004 RTP, would contribute to the significant impacts described in Impact 3.11-2 above.**

In addition to the impacts described above, the urban development and growth that would be accommodated by the transportation investments in the 2004 RTP would have the following cumulative impact:

Cumulative Impact 3.11-3: Implementation of the investments and policies in the 2004 RTP would contribute to a cumulatively considerable increase in the amount of total energy consumed in the SCAG region between 2000 and 2030. This would be a significant impact.

Forecast urban development and growth that would be accommodated by the transportation investments in the 2004 RTP would entail substantially greater use of energy resources in 2030 than in 2000 for purposes indirectly related to transportation, such as housing and employment. For example, the estimated increase in residential energy consumption is projected to be comparable in magnitude to the overall increase in regional population. It is beyond the scope of this analysis to project how this increased energy demand will be met, but public and private energy providers should continue their current long-range planning processes to assure that there is no shortfall. A variety of energy sources are available, and recent state actions (see

Regulatory Setting) should help to meet the growth in energy demand while minimizing associated environmental impact and reducing dependence on fossil fuels. Mitigation Measures **MM 3.11-2a through MM 3.11-2d** will help to mitigate the cumulative impacts on energy consumption related to the 2004 RTP in addition to the following measure:

MM 3.11-3a: SCAG shall continue to work with local jurisdictions and energy providers, through its Energy and Environment Committee and other means, to encourage regional-scale planning for improved energy management. Future impacts to energy shall be minimized through cooperative planning, and information sharing within the SCAG region. This cooperative planning shall occur during the update of the Energy chapter of SCAG's *RCPG*.

Significance After Mitigation

Even with mitigation, this cumulative impact can be expected to remain **significant**.

Comparison with the No Project

In the No Project Alternative, the regional population is projected to be the same as the Plan Alternative, but no regional transportation investments would be made beyond the existing programmed projects. The population distribution is assumed to follow past trends, uninfluenced by additional transportation investments.

Direct Impacts

The No Project Alternative would result in the construction of only about 1,500 new lane miles, compared with over 6,700 new lane miles in the Plan Alternative. As shown in Table 3.11-3, the total projected use of transportation fuels would increase in the SCAG region even more in 2030 under the No Project conditions than under the Plan Alternative (an increase of 41% for the No Project vs. 34% for the Plan). This difference would result from the additional travel necessary without the Plan improvements to the regional transportation system. Thus, the No Project Alternative would have an even greater significant impact on regional transportation energy usage (Impact 3.11-2) than would the Plan Alternative. The No Project Alternative could be expected to have a smaller, though still less-than-significant, impact on energy needs for construction than the Plan Alternative since fewer new projects would be built.

Cumulative Impacts

Overall transportation energy usage is projected to be greater under the No Project Alternative than under the Plan Alternative. However, the analysis of residential growth distributions indicates that under the No Project, total residential energy usage would be slightly lower than under the Plan because there would be fewer total households under the No Project Alternative. In total, it is likely that given the region's projected growth, the increase in total regional energy usage under the No Project scenario would still be cumulatively considerable and therefore significant.

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3.12 WATER RESOURCES

INTRODUCTION

This section describes the existing water resources in the SCAG region, identifies the potential impacts of the RTP on these resources, includes mitigation measures for the impacts and evaluates the residual impacts.

ENVIRONMENTAL SETTING

The existing water resources in the SCAG region are described in terms of climate, water supply and demand, water quality, and water safety and hazard issues.

Climate

Much of California enjoys a Mediterranean-like climate with cool, wet winters and warm, dry summers. An atmospheric high-pressure belt results in fair weather for much of the year with little precipitation in the summer. Most of the region's moisture originates in the Pacific Ocean as the high-pressure belt shifts southward in the winter. Climate within the SCAG region varies significantly depending on topographical conditions. The coastal areas have mild rainy winters and warm dry summers, while the inland areas experience more extreme temperatures and little precipitation. Most precipitation within the SCAG region occurs as rainfall, although snowfall is common at higher elevations. Approximately 80 percent of the annual precipitation occurs between December and March, mostly during a few major storms. Severe flooding can occur during these major storm events. For the entire region, annual rainfall can range from 2 to 5 inches in the inland deserts, 10 to 15 inches on the coastal plains, and 20 to 45 inches in the mountains. Table 3.12-1 and Figure 3.12-1 show the disparity of average precipitation within the region.

Table 3.12-1: Average Total Precipitation for Selected Areas Within the SCAG Region (1960-2001, in inches)

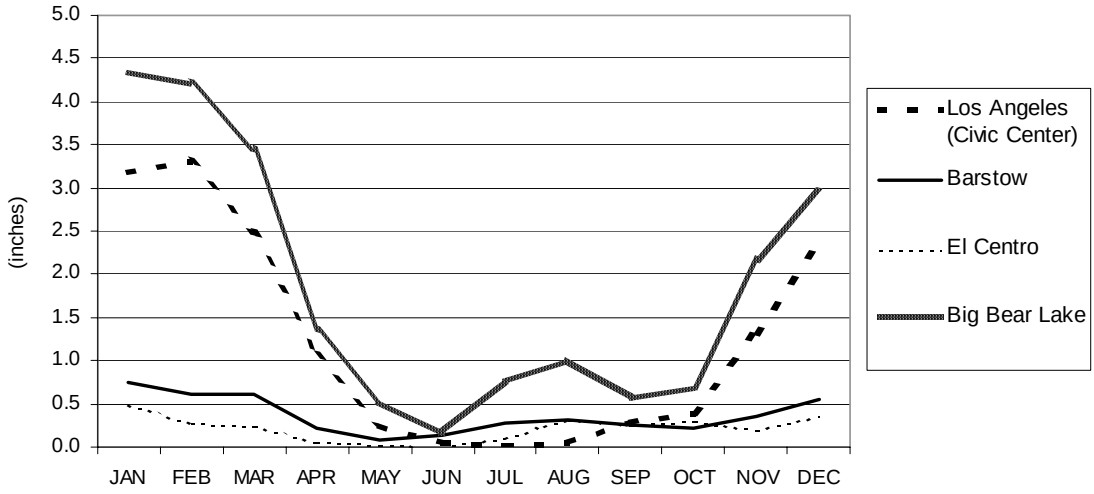
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
Los Angeles (Civic Center)	3.19	3.31	2.48	1.07	0.26	0.06	0.01	0.06	0.29	0.40	1.32	2.34	14.79
Barstow	0.75	0.61	0.62	0.22	0.08	0.13	0.28	0.32	0.26	0.21	0.36	0.55	4.40
El Centro	0.49	0.28	0.23	0.06	0.02	0.00	0.09	0.31	0.26	0.29	0.20	0.36	2.60
Big Bear Lake	4.35	4.21	3.45	1.35	0.53	0.15	0.76	1.00	0.57	0.69	2.17	2.96	22.20

Source: Western Region Climate Center. (2001). www.wrcc.wri.edu. Accessed March 2003.

Water Supply and Demand

The acre-foot is a common measure of volume in discussions of water supply. An acre-foot (af) is the amount of water required to fill an acre-sized area with one foot of water.

Figure 3.12-1 Average Monthly Precipitation for Selected Areas within the SCAG Region (1960-2001)



Source: Western Regional Climate Center. www.wrcc.wri.com. Accessed March 2003.

Local Water Supply

Local sources of water account for approximately 26 percent of the total volume consumed annually in the SCAG region.[1] Local sources include surface water runoff, groundwater and water reclamation. Water balance summaries for each of the hydrologic regions in the SCAG region are provided in Table 3.12-2 in the Technical Appendices. Below the following descriptions of local and imported water supply sources is a section describing water suppliers.

Groundwater

Groundwater accounts for most of the region's local (i.e., non-imported) supply of fresh water. In California, groundwater typically provides 30 percent of the urban and agricultural water used. This proportion increases to 40 percent in dry years.[2] The hydrologic regions vary in their dependence on groundwater for urban and agricultural uses. These differences are reflected in Table 3.12-3. Figure 3.12-4 (in Chapter 8.0 Figures) shows the groundwater basins within the SCAG Region. The California Department of Water Resources (DWR) estimates that the state has a groundwater overdraft (meaning that more groundwater is used than is restored) of approximately 1 to 2 million acre-feet (maf) in average years.[3] Changes in groundwater storage

[1] California Department of Water Resources. (1998). *The water plan*. Sacramento, CA.

[2] California Department of Water Resources. (2003). DRAFT bulletin 118: Draft California groundwater update. Sacramento, CA.

[3] California Department of Water Resources. (2003). *DRAFT California Water Plan Update*. Sacramento, CA.

for the hydrologic regions included in the SCAG region are shown in Table 3.12-2 in the Technical Appendices.

Table 3-12-3: Groundwater Dependence in the SCAG Region

Hydrologic Region	Percentage of the Total Urban and Agricultural Water Supply Provided by Groundwater
Central Coast[1]	83%
South Coast[2]	23%
South Lahontan[3]	50%
Colorado River[4]	8%

Source: Department of Water Resources. (2003). *DRAFT Bulletin 118. Draft California Groundwater Update.* Sacramento, CA.

[1] Includes part of Ventura County. The remainder is outside of the SCAG Region.

[2] Includes Orange County, most of San Diego and Los Angeles Counties, parts of Riverside, San Bernardino, Ventura, Kern and Santa Barbara Counties.

[3] Includes most of San Bernardino County, as well as Inyo, and parts of Mono, Kern and Los Angeles Counties.

[4] Includes all of Imperial County, most of Riverside, and parts of San Bernardino and San Diego Counties.

Recent efforts to store recycled water and surplus water in groundwater basins for use during drought periods have proven successful. The Metropolitan Water District of Southern California (MWD) has entered into 22 agreements with various water agencies for groundwater storage, resulting in more than 80,000 af of added supply per year.[4] 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.[5]

Surface Runoff

The infiltration of surface runoff augments groundwater and surface water supplies. However, the regional water demand exceeds the current natural recharge of runoff water. The arid climate, summer drought and increased urbanization contribute to this reduction in natural recharge. Runoff captured in storage reservoirs varies widely from year to year depending on the amount of local precipitation. On average precipitation contributes 55,000 acre-feet per year (afy) within the MWD service area (not including San Diego County).[6] Within the desert regions, the amount is considerably less, owing to weather and the absence of surface storage facilities.

[4] Metropolitan Water District. (2003). Appendix A: Metropolitan water demands. In *Report on Metropolitan water supplies*. Los Angeles, CA.

[5] California Department of Water Resources. (2003). *DRAFT California Water Plan Update.* Sacramento, CA.

[6] Metropolitan Water District. (2003). Appendix A: Metropolitan water demands. In *Report on Metropolitan water supplies*. Los Angeles, CA..

Storage Capacity

Water agencies in the region are also modifying existing reservoirs or creating new reservoirs to accommodate the expected future growth in water demand. MWD completed filling Diamond Valley Lake near Hemet in Riverside County in early 2002. This reservoir provides approximately 800,000 af of storage. In addition to surface storage, MWD is implementing various groundwater storage projects both within the SCAG region and in other areas of California. These "conjunctive use" projects store excess water during wet years in underground basins and can be accessed during dry years when surface water supplies are limited.

Imported Water Supply

Imported sources of water (including the Colorado River Aqueduct, the State Water Project's California Aqueduct, and the Los Angeles Aqueduct) currently supply more than 6 maf of water to the SCAG region annually, accounting for nearly three quarters of the total water used in the region.[7]

Since local supplies alone have not been sufficient to serve Southern California's rapidly growing population, imported water supplies have historically been developed to accommodate projected demands. Beginning with the completion of the Los Angeles Aqueduct in 1913, the region has imported water from other parts of the state to supplement local supplies.

The All-American Canal and Coachella Canal were completed in 1940, supplying water to irrigation districts in the Imperial and Coachella Valleys for agricultural operations. The Colorado River Aqueduct completed in 1941 by MWD brings Colorado River water to the urban coastal areas, ranging from Ventura County to San Diego County. The California Aqueduct completed in the 1970s delivers water from the Sacramento Delta to MWD for distribution to retail agencies throughout southern California. Figure 3.12-5 (in Chapter 8.0 Figures) depicts the areas served by these imported water supplies.

Colorado River

Under water delivery contracts with the United States for permanent service, California entities have enjoyed certain entitlements to Colorado River water. Prior to 1985, California generally received about 6 maf per year. The regularity of this delivery changed with implementation of the Central Arizona Project in 1985 when California's firm apportionment was reduced to 4.4 maf per year. However California is entitled to one half of the surplus water available when the Secretary of the Interior declares a surplus condition on the River. Typically the River's surplus has allowed California entities to take an additional 800,000 af annually.

However, with increased urbanization in the Colorado River Basin states and recent agreements among the Basin states and the California water agencies, the availability of surplus water for California will steadily decline over the next fifteen years. California water agencies are pursuing

[7] California Department of Water Resources. (1998). *The water plan*. Sacramento, CA.

various strategies to offset this gradual, but certain loss of future water. Examples of these strategies include additional reservoir and storage agreements, new water transfers between agricultural and urban users, and more water conservation and recycling.[8]

State Water Project

The State Water Project (SWP) supplies water to Southern California via the California Aqueduct, with delivery points in Los Angeles, San Bernardino, and Riverside counties. SWP has historically provided 25 to 50 percent of MWD's water.[9] Southern California's maximum SWP contractual entitlement is about 2.0 maf per year, and the reliable yield is much less.

Los Angeles Aqueduct

The Los Angeles Aqueduct, originally built in 1913, carries water 233 miles south from Owens Valley to Los Angeles. The original aqueduct project was later supplemented by a second project built to transfer water from Mono Basin to Los Angeles. These two aqueducts have historically supplied an average of about 300,000 afy. However, in drier periods, deliveries have been reduced to less than 150,000 afy.[10]

Currently, the supply has been reduced because of litigation aimed at protecting Owens Valley and Mono Basin by reducing the City's diversion of water from these environmentally impaired ecosystems. For planning purposes, an average supply of 380,000 afy and a dependable supply of 310,000 afy are used. During severe droughts, these supplies can be reduced to 125,000 afy.

Water Suppliers

Numerous wholesale and retail water suppliers serve the SCAG region. Largest of these regional suppliers is MWD, serving the urbanized coastal plain from Ventura County to the Mexican border. Other suppliers in the desert regions of Southern California mainly serve agricultural interests and individual cities. These water wholesalers provide water to local water agencies for retail distribution. As an example of this distribution, MWD supplies 26 member agencies, 12 of which wholesale water to local cities and 14 of which are individual cities that directly serve water to their residents.

Metropolitan Water District

MWD was organized in 1928, as a result of the Metropolitan Water District Act adopted by the State Legislature. The agency was created to develop, store, and distribute water at wholesale rates to its member agencies. Member agencies include individual cities and local water

[8] Metropolitan Water District. (2003). Report on Metropolitan's water supplies. Los Angeles, CA.

[9] Metropolitan Water District. (2003). Appendix C: California aqueduct deliveries. In Report on Metropolitan's Water Supplies. Los Angeles, CA.

[10] Metropolitan Water District. (2003). Appendix A: Demand projections. In Report on Metropolitan Water Supplies. Los Angeles, CA.

agencies within the service area, supplying municipal, industrial, and agricultural uses. Municipal and industrial demand within the MWD service area constitutes approximately 90 percent of the total demand. As urbanization has increased and water prices have risen, agricultural demand has declined from 14 percent of the total MWD demand in 1980 to 8 percent in 1997.[11]
Table 3.12-4 summarizes dry-year supply and demand to the year 2025 for the MWD service area. Figure 3.12-6 (in Chapter 8.0 Figures) depicts the MWD service area within the SCAG Region.

Table 3.12-4: Water Supply[1] Multiple Dry Year Projections for the MWD Service Area (acre-feet per year)

	2005	2010	2015	2020	2025
Current supplies					
Colorado River[2]	721,330	833,292	833,292	833,292	833,292
California Aqueduct	1,290,300	1,376,100	1,146,100	1,120,300	1,120,300
In-Basin Storage	455,300	531,700	530,400	513,000	499,200
Supplies Under Development					
Colorado River[2]	167,300	416,708	416,708	416,708	416,708
California Aqueduct	20,000	195,000	390,000	390,000	390,000
In-Basin Storage	-	89,000	200,000	200,000	200,000
Maximum Supply Capability[1]	**2,654,230**	**3,441,800**	**3,516,500**	**3,473,300**	**3,459,500**
Total Demands on MWD (firm and replenishment)	**2,245,200**	**2,175,600**	**2,320,900**	**2,534,100**	**2,688,500**
Potential Reserve and System Replenishment Supply	**409,030**	**1,266,200**	**1,195,600**	**939,200**	**771,000**

Source: Metropolitan Water District, 2003. Report on Metropolitan's Water Supplies
[1] Represents expected supply capability for resource programs.
[2] Total Colorado River Aqueduct Deliveries limited to 1,250,000 acre-feet per year.

In 2005, MWD projects delivery of 1.97 maf of water to its member agencies (including San Diego County Water Authority), increasing to 2.4 maf in 2025 in normal year weather.[12] Projections are not available for 2030. Projections for multiple dry years are used as planning targets, since in those years supplies are restricted and demand generally increases. The annual multiple dry-year demand is projected to increase to 2.7 maf by 2025, not including agricultural demand.[13]
The "Report on Metropolitan's Water Supplies" identifies strategies to meet projected future demand, including increased storage, conjunctive use (groundwater storage), conservation, desalination, water transfers, and recycling. The Plan also outlines a plan of local projects in

[11] *Ibid.*

[12] Metropolitan Water District. (2003). Appendix A: Demand projections. In *Report on Metropolitan's water supplies*. Los Angeles, CA.

[13] *Ibid.*

which these efforts would be coordinated with local agencies, sharing the costs and providing an incremental approach to meeting demand.

With the local projects planned and currently underway, MWD estimates that water supplies will be reliable for the next 20 years, even in severe drought conditions similar to 1990. Through enhanced conservation efforts, MWD expects a 7 to 12 percent reduction in demand this year.

Suppliers Outside MWD Service Area

Other districts within the SCAG area access water from the same sources as MWD: the Colorado River, the SWP, and local sources. Water use in these areas is predominantly for agricultural purposes. Water Districts outside the MWD service area are listed in Table 3.12-5 and shown in Figure 3.12-9 (in Chapter 8.0 Figures).

Table 3.12-5: Major Water Suppliers Outside the MWD Service Area

Water Agency	Land Area (square miles)	Sources of Water Supply
Antelope Valley and East Kern District	2,350	SWP, groundwater, reclaimed water
Bard Irrigation District (and Yuma Project Reservation Division)	23	Colorado River
Casitas Municipal Water District	150	Groundwater
Castaic Lake Water Agency	125	SWP
Coachella Valley Water District	974	SWP, Colorado River, and local
Crestline Lake Arrowhead	53	SWP
Desert Water Agency	324	SWP and groundwater
Imperial Irrigation District	1,658	Colorado River
Littlerock Creek Irrigation District	16	SWP, groundwater, and surface water
Mojave Water Agency	4,900	SWP and groundwater
Palmdale Water Agency	187	SWP and groundwater
Palo Verde Irrigation District	188	Colorado River
San Bernardino Municipal Water	328	SWP and groundwater
San Gorgonio Pass Water Agency	214	Groundwater

Source: Environmental Science Associates. (2000). Los Angeles, CA.

Many of these Districts are located in the arid regions of Imperial and Riverside Counties within the Colorado River Hydrologic Unit, and supply predominantly agricultural interests with Colorado River water.

The Imperial Irrigation District (IID) has diverted and delivered more than 3.1 maf of Colorado River water to nine cities and nearly 500,000 acres of agricultural lands in Imperial Valley. Ninety-eight percent of that water is used for agricultural purposes. The remaining two percent is

treated to safe drinking water standards and distributed to residential water customers. The district maintains an extensive gravity flow drainage system and maintains ten fully operational reservoirs. IID recently agreed to a water transfer with the San Diego County Water Authority in which up to 200,000 afy will be delivered to coastal urban consumers via the Colorado River Aqueduct.[14]

CALFED

The San Francisco Bay/Sacramento-San Joaquin Delta Estuary (the Bay Delta) is the largest estuary on the West Coast. It supplies drinking water for two-thirds of the people in California and irrigation water for over 7 million acres of agricultural land. The Bay-Delta is the hub of California's two largest water distribution systems: the Central Valley Project (CVP) operated by the U.S. Bureau of Reclamation and the SWP operated by the California Department of Water Resources. MWD has a SWP contractual entitlement of more than 2 maf annually that is moved through the Bay Delta water system and the California Aqueduct.

For decades, the Bay-Delta has been the focus of competing interests: economic, ecological, urban, and agricultural. These conflicting demands have resulted in a changing outlook for uses of Bay-Delta water. As ecological claims have grown, the prospects for full use of urban entitlements have suffered. Increasingly, greater supplies to meet urban and agricultural demand have become doubtful.

Since 1995 State and Federal agencies with regulatory or management responsibility in the Bay-Delta have been working together as CALFED to develop a long-term comprehensive plan that will improve water management of the Bay-Delta system and better meet competing goals. The Draft Environmental Impact Report for management alternatives of the Bay-Delta was completed in 1999.

Wastewater Treatment Facilities

Much of the urbanized areas of Los Angeles and Orange Counties are serviced by three large publicly owned treatment works (POTWs): the City of Los Angeles Bureau of Sanitation Hyperion Facility, the Joint Outfall System of the Los Angeles County Sanitation Districts, and the Orange County Sanitation District treatment plant. These three facilities handle more than 70 percent of the wastewater generated in the entire SCAG region, serving a population of approximately 12 million people.

In addition to these large facilities, medium sized POTWs (greater than 10 million gallons per day or mgd) and small treatment plants (less than 10 mgd) service smaller communities in Ventura County, southern Orange County, and in the inland regions (see Table 3.12-6). Many of these treatment systems recycle their effluent through local landscape irrigation and groundwater

[14] Imperial Irrigation District. (n.d.). Water. Retrieved August 28, 2003 and November 5, 2003, from http://www.iid.com/water/.

Table 3.12-6: Wastewater Flow and Capacity in the SCAG Region

Wastewater Agency	Current Flow (mgd)	Capacity Flow (mgd)
Imperial County		
City of El Centro	3.9	8.0
City of Brawley	3.7	6.0
City of Calexico	2.2	4.3
Los Angeles County		
Los Angeles County Sanitation Districts	514.9	642.8
City of Los Angeles	430.0	560.0
Las Virgenes Municipal Water District	9.5	16.0
City of Burbank	9.0	9.0
Orange County		
Orange County Sanitation District	234.0	480.0
Irvine Ranch Water District	18.1	25.5
South Orange County Wastewater Authority (SOCWA)	26.5	35.7
El Toro Water District	6.0	6.0
Moulton Niguel Water District	All wastewater goes to SOCWA treatment facilities	
Santa Margarita Water District*	6.5	
Riverside County		
Eastern Municipal Water District	31.3	49.0
City of Riverside	30.0	40.0
San Bernardino County		
Inland Empire Utilities Agency	60.0	76.0
City of San Bernardino	25.5	33.0
Victor Valley Wastewater Reclamation Authority	8.7	11.0
City of Redlands	6.0	9.5
Ventura County		
City of Oxnard	31.7	39.7
City of Simi Valley	12.5	18.0
City of Thousand Oaks	10.3	12.0
City of Ventura	9.0	14.0
Camarillo Sanitation District	4.5	6.8

* capacity flow data not available
Source: SCAG research. (May 2003).

recharge projects. Other treatment systems discharge to local creeks on a seasonal basis, effectively matching the natural conditions of ephemeral and intermittent stream habitats.

Many rural communities utilize individually owned and operated septic tanks rather than centralized treatment plants. The RWQCB generally delegates oversight of septic systems to

local authorities. However, Waste Discharge Requirements (WDRs) are generally required for multiple-dwelling units and in areas where groundwater is used for drinking water.

Water Demand

Water demand in California can generally be divided between urban, agricultural, and environmental uses. In the SCAG area, 74 percent of potable water is provided from imported sources. Annual water demand fluctuates in relation to available supplies and according to the rainfall of a particular year. During prolonged periods of drought, water demand can be reduced significantly through conservation measures. In 1995 (the year for which data was provided in DWR's 1998 Water Plan Update)[15], the demand for water in the State of California was 80 million maf. Of this total, the SCAG region accounted for approximately 9.8 maf.[16]

California's water demand has grown along with population. According to the Draft California Water Plan Update 2003, water demand in California will increase by 2 to 3 maf by 2030.[17] If SCAG maintains its share of 12% of the state's water demand, the SCAG region could be expected to require an additional 245,000 to 370,000 af in 2030.

Demographics, Land Use, and Water Use

Water demand is influenced not only by population size, but also by socio-economic characteristics, geographical distribution of the population, and water conservation practices. The MWD estimates that average residential per capita use ranges from 97 gallons per person per day in coastal areas to 162 gallons per person per day in the desert areas.[18] Table 3.12-7 provides factors that influence water demand. Table 3.12-2 (in Chapter 8.0 Figures) provides information on the supply sources for each of the hydrologic regions in the SCAG region.

Table 3.12-7: Factors Influencing per Capita Water Use

Factors that increase per capita water use	Factors that decrease per capita water use
Increased household income	Increased household size
Increased labor force	Increased proportion of multi-family housing
Increased commercial development	Changes in the industrial mix
Growth in the inland region	Urban water conservation

Source: SCAG. (1996). *Regional Comprehensive Plan and Guide*. Los Angeles, CA.

[15] California Department of Water Resources. (1998). *California Water Plan Update*. Sacramento, CA.

[16] *Ibid.*

[17] California Department of Water Resources. (2003). DRAFT California Water Plan Update. Sacramento, CA.

[18] Southern California Association of Governments. (1996). *Regional comprehensive plan and guide*. Los Angeles, CA.

Water Conservation

Urban conservation measures include reducing landscape water use and installing low flow toilets and showerheads in new development. In September of 1991, during a state-wide drought, the MWD and other California water agencies signed a Memorandum of Understanding Regarding Urban Water Conservation Best Management Practices. Best Management Practices (BMPs) to conserve water in commercial, institutional, and industrial uses could further reduce demand by an estimated 3 to 5 percent. Encouragement of the use of native and drought-proof plants, increased water conservation credits, funding for innovative conservation ideas in industry, tiered water rate structures, "smart" irrigation controllers and rebates for conservation hardware are all methods being implemented for increased conservation.[19]

Agricultural water conservation options are growing as irrigation techniques improve and as water transfer agreements create new incentives for more efficient water management and the growth of higher value crops. As a result of these developments DWR expects agricultural water consumption to decline materially by 2030 throughout the SCAG area.

Water Reclamation and Recycling

Water reclamation and recycling involves the treatment of polluted groundwater and wastewater effluent for reuse. New beneficial purposes include landscape irrigation, surface water amenities in public parks and places, industrial process water, and groundwater recharge. The use of recycled water for these various purposes augments the region's water supplies and reduces the demand for water imports.

Water Quality

The quality of the SCAG region's surface waters, groundwater, and coastal waters are discussed below.

Surface Waters

Surface water resources in the SCAG region (as shown in Table 3.12-8 below and Figure 3.12-2 (in Chapter 8.0 Figures)) include creeks and rivers, lakes and reservoirs, and the inland Salton Sea. Reservoirs serving flood control and water storage functions exist throughout the region. Because the climate of Southern California is predominantly arid, many of the natural rivers and creeks are intermittent or ephemeral, drying up in the summer or flowing only in reaction to precipitation. For example, annual rainfall amounts vary depending on elevation and proximity to the coast. Some waterways such as Ballona Creek and the Los Angeles River maintain a perennial flow due to agricultural irrigation and urban landscape watering.

[19] Metropolitan Water District. (2003). *Report on Metropolitan's water supplies*. Los Angeles, CA.

Table 3.12-8: Major Surface Waters		
Wetlands	**Rivers, Creeks, and Streams**	**Lakes and Reservoirs**
Los Angeles Basin		
Ventura River Estuary Santa Clara River Estuary McGrath Lake Ormond Beach Wetlands Mugu Lagoon Trancas Lagoon Topanga Lagoon Los Cerritos Wetlands Ballona Lagoon Los Angeles River Ballona Wetlands	Sespe Creek Piru Creek Ventura River Santa Clara River Los Angeles River Big Tujunga Canyon San Gabriel River Ballona Creek	Lake Casitas Lake Piru Pyramid Lake Castaic Lake Bouquet Reservoir Los Angeles Reservoir Chatsworth Reservoir Sepulveda Reservoir Hansen Reservoir San Gabriel Reservoir Morris Reservoir Whittier Narrows Reservoir Santa Fe Reservoir
Lahontan Basin		
	Mojave River Amargosa River	Silver Lake Silverwood Lake Mojave River Reservoir Lake Arrowhead Soda Lake
Colorado River Basin (7)		
	Colorado River Whitewater River Alamo River New River	Lake Havasu Gene Wash Reservoir Copper Basin Reservoir Salton Sea Lake Cahulla
Santa Ana Basin (8)		
Hellman Ranch Wetlands Anaheim Bay Bolsa Chica Wetlands Huntington Wetlands Santa Ana River Laguna Lakes San Juan Creek Upper Newport Bay San Joaquin Marsh Prado Wetlands	Santa Ana River San Jacino River	Prado Reservoir Big Bear Lake Lake Perris Lake Matthews Lake Elsinore Vail Lake Lake Skinner Lake Hemet Diamond Valley Lake
San Diego Basin (9)		
	Santa Margarita River Aliso Creek	Vail Lake Skinner Reservoir

Source: Regional Water Quality Control Boards, as amended as of 2003. Water Quality Control Basin Plans for Regions 4,6, 7,8,9. Includes major waterbodies only, not all waterbodies listed for the SCAG region.

The Colorado River watershed includes seven states on the western slope of the Rocky Mountains, traversing the arid southwest to the Gulf of California in Mexico. The river supplies water to 25 million people in both the U.S. and Mexico and forms the eastern border of the SCAG region. The Salton Sea, the largest inland body of water in California, was formed around 1906 when the Colorado River was accidentally diverted from its natural course. At present, the Sea is fed by agricultural runoff from the Imperial Valley and Mexico. The Salton Sea is also fed by the New River and Alamo River and would dry up entirely without agricultural runoff.

Other major natural surface waters in the SCAG region include the Ventura River, Santa Clara River, Los Angeles River, San Gabriel River, Santa Ana River, San Jacinto River, and upstream portions of the Santa Margarita River.

The Los Angeles River is a highly disturbed system due to the flood control features along much of its length. Due to the high urbanization in the area around the Los Angeles River, runoff from industrial and commercial sources as well as illegal dumping contribute to reduce the channel's water quality. The San Gabriel River is similarly altered with concrete flood control embankments and impacted by urban runoff.

The Santa Ana River drains the San Bernardino Mountains, cuts through the Santa Ana Mountains, and flows onto the Orange County coastal plain. Recent flood control projects along the river have established reinforced embankments for much of the river's path through urbanized Orange County. The Santa Margarita River begins in Riverside County, draining portions of the San Jacinto Mountains and flowing to the ocean through northern San Diego County. Complete lists of surface water resources within the SCAG region along with the beneficial uses associated with them are contained in the Basin Plans prepared by the five RWQCBs of the region.

Approximately two-thirds of California's waterbodies assessed in the State's Water Quality Assessment Report (1992) are threatened or impaired by non-point sources of pollution. Much of this pollution is transported to surface waters by stormwater. Figure 3.12-3 (in Chapter 8.0 Figures) the impaired water bodies in the SCAG Region.

Urban Runoff

Urbanization generally increases pollutant loads in stormwater. Many of the pollutants in urban runoff are attributable to landscape irrigation, highway runoff, and illicit dumping. The SWRCB identifies the following pollutants of concern found in urban runoff:

- *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 in the water for other species.
- *Bacteria and viruses*. Pathogens introduced to receiving waters from animal excrement in the watershed and by septic systems can limit water contact activities.

- *Oxygen demanding substances*. Substances such as lawn clippings, animal excrement, and litter can reduce dissolved oxygen levels as they decompose.
- *Oil and grease*. Hydrocarbons resulting from automobile use are toxic to some aquatic life.
- *Metals*. Lead, zinc, cadmium, and copper are the heavy metals found most commonly in stormwater. Other metals introduced by the use of automobiles 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 (PAHs) are toxic organic chemicals found in stormwater.
- *Floatables*. Trash in waterways increases metals and toxic pollutant loads in addition to creating aesthetic impacts.

Groundwater

The general quality of groundwater in the SCAG region is degraded as a result of land uses and water management practices in the Basins. Fertilizers and pesticides typically used on agricultural lands infiltrate and degrade groundwater. Septic systems and leaking underground storage tanks can also impact groundwater quality. Urban runoff is also a significant source of pollutants. In addition to these impairments, excessive groundwater pumping allows saltwater intrusion from the ocean to further degrade groundwater quality.

The natural infiltration of surface waters has an effect on groundwater. These effects decrease with a growth in urban development and the creation of impervious surfaces. Recent studies from across the country report that roads, parking lots, and sidewalks comprise 55 to 75 percent of existing impervious surface areas. Residential, commercial, and industrial structures constitute the remaining 25 to 45 percent. There is an inverse relationship between water quality and impervious areas, especially where impervious surfaces within a watershed exceed 10 percent of land area. Where this percentage is greater than 25 percent, water quality is generally poor and inhospitable for habitat or for recreation activities.[20]

Coastal Waters

Coastal waters in the region include bays, harbors, estuaries, beaches, and open ocean. Deep draft commercial harbors include the Los Angeles/Long Beach Harbor complex and Port Hueneme. Shallower small craft harbors are prevalent along the coastline including Dana Point Harbor, Newport Beach Harbor, Huntington Harbor, Marina Del Rey Harbor, and Ventura Harbor. Several small estuaries and saltwater marshes along the coast are generally considered sensitive ecological areas. These include Newport Bay, Bolsa Chica Wetlands, La Ballona Wetlands,

[20] Center for Watershed Protection. (1988). *Rapid watershed planning handbook – A resource guide for urban subwatershed management.* Ellicott City, MD.

Malibu Lagoon, and Mugu Lagoon. These coastal waters are impacted by previously described wastewater discharges, non-point source runoff, dredging, bilge water discharges, illicit discharges, and spills. Impaired coastal areas are shown in the map of State Water Resources Control Board (SWRCB) impaired waterbodies (Figure 3.12-3 in Chapter 8.0 Figures).

Water Safety and Hazards

Flooding is an important ecological function in California, and floodplains provide many economic, ecological, agricultural, and societal benefits. However, floods can also cause loss of life and property. Since 1950, all 58 counties in California have been declared flood disaster areas at least three times.[21] Southern California flood hazards occur with extreme weather phenomena, such as El Niño. When the storms deliver more precipitation than the soils and the basin can absorb, flooding occurs. [22]

In addition to riverine flooding, the mountain range and foothill topography in the SCAG region allow for "alluvial fan" flooding. Alluvial fans are gently sloping fan-shaped landforms created by thousands to millions of years of deposition of eroded sediment. Debris flows and flash floods occur episodically in these environments and place many communities at risk during intense rainfall events.[23] California's highest growth areas are in counties with extensive alluvial fan environments, such as the SCAG region.[24]

Mapping flood hazard areas and implementing land use regulations are tools that can be used to minimize damage from floods. Mapping alluvial fan flood hazard zones is difficult, as the direction of flow is not predictable. The California Floodplain Management Task Force has recommended that more extensive mapping of alluvial floodplains be undertaken.[25] Figure 3.12-7 (in Chapter 8.0 Figures) identifies federally designated flood hazard zones in the SCAG region.

REGULATORY SETTING

Relevant federal, State, regional and local regulations pertaining to water quality, water supply and demand, and water safety and hazards are discussed below.

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[21] California Department of Water Resources, Floodplain Management Task Force. (2003). California floodplain management report. Sacramento, CA: Author.

[22] United States Geological Survey. (1997). Some perspectives on climate and floods in the southwestern United States. Reston, VA: Author.

[23] United States Geological Survey. (1999). Natural hazards on alluvial fans. Reston, VA: Author.

[24] URS. (2002). Alluvial fan flooding. Presentation for the California Floodplain Management Task Force.

[25] California Department of Water Resources, Floodplain Management Task Force. (2003). California floodplain management report. Sacramento, CA.

Federal Agencies and Regulations

The U.S. Environmental Protection Agency (EPA)

The EPA is the federal agency responsible for water quality management and administration of the federal CWA. The EPA has delegated most of the administration of the CWA in California to the SWRCB. Much of the responsibility for implementation of the SWRCB's policies is delegated to the nine RWQCBs. (See "State Agencies and Regulations," and "Regional and Local Agencies and Regulations" below). The SCAG region encompasses portions of five separate RWQCB's as shown in Figure 3.12-8 (in Chapter 8.0 Figures): Los Angeles Region #4, Lahontan Region #6 (the southern basin only), Colorado River Region #7, Santa Ana Region #8, and the San Diego Region #9 (a small portion of southeastern Orange County).

Section 402 of the CWA established the National Pollutant Discharge Elimination System (NPDES). The USEPA authorized the SWRCB to issue NPDES permits in the State of California in 1974. The NPDES permit establishes discharge pollutant thresholds and operational conditions for industrial facilities and wastewater treatment plants. Non-point source NPDES permits, including Storm Water Management Plans (SWMPs), are also required for municipalities and unincorporated communities with populations greater than 100,000. Urban communities with populations less than 100,000 are subject to a different regulatory implementation schedule known as "Phase II" permitting.

The Federal Safe Drinking Water Act, enacted in 1974, amended in 1986, and implemented by the EPA, imposes water quality and infrastructure standards for potable water delivery systems nationwide. The primary standards are health-based thresholds established for numerous toxic substances. States are required to ensure that potable water retailed to the public meets primary standards. Standards for a total of 81 individual constituents have been established under the Safe Drinking Water Act as amended in 1986. The USEPA may add additional constituents in the future. State primary and secondary drinking water standards are promulgated in CCR (California Code of Regulations) Title 22 Section 64431-64501.

Regulation of wastewater treatment includes disposal and reuse of biosolids. The CWA as amended in 1987 obligated the EPA to develop regulations concerning biosolid disposal. Part 503 of Title 40 of the Code of Federal Regulations established standards for the re-use or disposal of biosolids generated during the treatment of domestic wastewater. The regulations for the management of biosolids vary, depending on biosolids uses or applications such as soil enhancement, landfill disposal or incineration. The land application regulations include provisions for pathogen reduction, pollutant reduction, and vector attraction reduction.

The U.S. Department of the Interior

Through water delivery contracts, laws, and regulations, the Secretary of the Interior rebulates the supply of Colorado River water in Colorado.

The U.S. Army Corps of Engineers

Section 404 of the CWA obligates the USACE to issue permits for the movement of dredge and fill material into and from "waters of the United States."

Additionally, Section 404 requires permits for activities affecting hydrologically important areas. For example, alterations of wetlands, rivers, or ephemeral creek beds resulting from construction activities require Section 404 permits.

The Federal Emergency Management Agency (FEMA)

The U.S. Congress passed the National Flood Insurance Act in 1968 and the Flood Disaster Protection Act in 1973 in order to restrict certain types of development on floodplains and provide for a national flood insurance program. The purpose of these programs is to reduce the need for large publicly funded flood control structures and disaster relief.

The Federal Emergency Management Agency (FEMA) administers the National Flood Insurance Program. Figure 3.12-7 (in Chapter 8.0 Figures) identifies federally designated flood hazard zones in the SCAG region.

FEMA classifies flood hazard zones as follows:

- Zone A. Areas of 100-year flood. Base flood elevations and flood hazard factors are not determined.
- Zone B. Areas between the limits of the 100-year flood and 500-year flood; or certain areas subject to the 100-year flooding with average depth of less than one foot; or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.
- Zone C. Areas of minimal flooding not requiring flood insurance.

State Agencies and Regulations

The California State Water Resources Control Board (SWRCB)

As described above, the EPA has delegated most of the administration of the CWA in California to the SWRCB. In turn, much of the responsibility for implementation of the SWRCB's policies is delegated to the nine RWQCBs.

Section 303(d) of the CWA requires the SWRCB to list impaired water bodies in the State and determine total maximum daily loads (TMDLs) of pollutants or other stressors that are contributing excessively to these impaired waters. The California 303(d) list was updated in March of 2003 and includes several hundred rivers, creeks, beaches, and wetland resources within the SCAG region. Each of these resources is listed with specific pollutants or other stressors, such as flood control diversions, which contribute to the degrading of the water quality.

A priority schedule has been established by a federal court consent decree to develop the pollution control measures necessary to eliminate these water impairments by the year 2012.

Department of Water Resources (DWR)

The DWR manages the SWP and compiles planning information on supply and demand within the state. The California Safe Drinking Water Act enacted in 1976 is codified in Title 22 of the CCR. Potable water supply is managed through local agencies and water districts, DWR, the Department of Health Services (DHS), the SWRCB, the EPA, and the U.S. Bureau of Reclamation.

The 1991 Water Recycling Act established water recycling as a priority in California. The Act encourages municipal wastewater treatment districts to implement recycling programs in order to help locally meet future water demands. Wastewater treatment and water pollution control laws in the State of California are codified in the California Water Code and the CCR Titles 22 and 23.

Regional and Local Agencies and Regulations

Regional Water Quality Control Boards (RWQCB)

As described above, the SWRCB delegates implementation of its policies to the nine RWQCBs in California. Five of these Boards have jurisdiction within the SCAG Region and are shown in Figure 3.12-8 (in Chapter 8.0 Figures).

The RWQCBs are responsible for developing pollution control plans (otherwise known as TMDLs) to eliminate the water impairments identified in the 303(d) listings. Figure 3.12-3 (in Chapter 8.0 Figures) shows the location of Section 303(d) listed Impaired Water Bodies located within the SCAG Region. TMDLs are being prepared in the various watersheds of the region. In the Los Angeles Basin, however, a court-mandated schedule for TMDL adoptions must be completed by 2012.

The RWQCBs also coordinate the State Water Quality Certification program, or Section 401 of the CWA. Under Section 401, states have the authority to review any federal permit or license that will result in a discharge or disruption to wetlands and other waters under state jurisdiction, to ensure that the actions will be consistent with the state's water quality requirements.

In addition, the federal Clean Water Action Plan (CWAP) requests that states and tribes, with assistance from federal agencies and input from stakeholders and private citizens, convene a collaborative process to develop Unified Watershed Assessments (UWA). The CWAP organizes watersheds within the following categories:

Category I – Watersheds that are candidates for increased restoration because of poor water quality or the poor status of natural resources.
Category II – Watersheds that have good water quality but can still improve.
Category III – Watersheds with sensitive areas on federal, state, or tribal lands that need protection.

Category IV – Watersheds for which there is insufficient information to categorize them.

Watersheds and watershed priorities or activities have been identified for each of California's nine RWQCBs. A partial list of the major targeted watersheds and watershed priorities or activities in the SCAG region are listed in Table 3.12-9.

Table 3.12-9: Partial List of Targeted Watersheds in the SCAG Region

RWQCB	Watershed	Targeted Watershed Priorities/ Activities
Region 4	Calleguas Creek	Reduce nutrients, pesticides, and sediments in irrigation water; restore aquatic and riparian habitats; flood control; enhance recreational uses.
	Ventura River	Restore aquatic habitats; implement flood control; enhance recreational uses.
	Los Angeles River	Restore aquatic and riparian habitats; enhance recreational uses; reduce pollutants.
	Santa Monica Bay	Reduce pollutants from boatyards and marinas; enhance recreational uses; restore wetlands.
Region 7	Imperial Valley	Agricultural pollution control.
	Coachella Valley	Agricultural pollution control; groundwater protection.
Region 8	Chino Basin	Agricultural and dairy runoff; salt build-up in groundwater.
	Newport Bay	Toxics, nutrients, pathogens, and sediments
Region 9	Aliso Creek	Coliform contamination
	Santa Margarita River	Nitrogen and phosphorous loading from agriculture.

Source: California Department of Water Resources. (1998). *California Water Plan Update, Bulletin 160-99.* Sacramento, CA.

In recent years, watershed planning efforts have become a more prevalent means of protecting regional water resources. Certain areas in California have developed community-based authorities that involve disparate stakeholders within a watershed effort. Stakeholder interests may include municipalities, county, state and federal government entities, agricultural interests, industrial interests, private property owners with water rights, and environmental or conservation groups. When these initiatives operate in conjunction with the support and participation of a diverse range of stakeholders, water quality protection and other benefits can result. One of the advantages of these kinds of initiatives is the potential for achieving some regional consensus without regulatory sanctions or costly (and time-consuming) litigation.

RWQCBs issue WDRs for discharges of privately or publicly treated domestic wastewater. The RWQCB also issues waste reclamation requirements (WRRs) for treated wastewater used exclusively for reclamation projects such as irrigation and groundwater recharge. Title 22 of the CCR lists allowable reclamation uses including landscape irrigation, recreational impoundments, and groundwater recharge.

Other Local Agencies and Regulations

Where local jurisdictions regulate development within flood plains, construction standards are used to reduce flood impedance, safety risks, and property damage. Historic floods in the region have been devastating. In response, local flood control agencies and the USACE have established extensive flood control projects including dams and engineered channels. The use of concrete and riprap levees and hard river bottoms have significantly reduced riparian habitats throughout the region.

Groundwater basins in California and their uses are generally subject to various management authorities, including adjudication and agency systems that are designed to create fairness between groundwater claimants. Adjudicated groundwater basins are managed by a watermaster designated by the court for the purpose of managing the distribution of extracted water and maintaining water quality and supply. Table 3.12-10 lists the adjudicated water basins in the SCAG region.

TABLE 3.12-10: California Adjudicated Groundwater Basins and Watermasters

County	Basin	Watermaster
Los Angeles	Central	DWR
	West Coast	DWR
	Upper Los Angeles River Area	Superior Court appointee
	Raymond	Raymond Basin Management Board
	Main San Gabriel	Nine-member Board
	Puente	Three Appointees
San Bernardino	Warren Valley	Hi-Desert Water District
	San Bernardino Basin Area	One representative each from Western Municipal Water District of Riverside County and San Bernardino Valley Municipal Water District
	Cucamonga	Cucamonga County Water District and San Antonio Water Company
	Mojave Basin Area	Mojave Water Agency
Riverside and San Bernardino	Chino	Nine-member Board
Riverside and San Diego	Santa Margarita Watershed	District Court Appointee
Ventura	Santa Paula	Three-person Technical Advisory Committee

Source: Department of Water Resources. (2001). *"Water Facts," No. 3.* Sacramento, CA

In addition to federal and state restrictions on wastewater discharges, most incorporated cities in California have adopted local ordinances for wastewater treatment facilities. These ordinances generally require treatment system designs to be reviewed and approved by the City prior to construction.

METHODOLOGY

The PEIR identifies the potential impacts of the proposed 2004 RTP on water resources. The water quality analysis evaluates the regional-scale impact of the RTP and the cumulative impact of the RTP projects and the associated growth on water quality. The analysis includes a programmatic-level assessment of the expected urbanized land use and the associated impervious surfaces. In addition, the PEIR identifies transportation projects that are located in targeted watersheds, adjacent to impaired water bodies, or in flood hazard areas and considers the potential environmental effects of associated housing and employment growth. Subsequent, project-specific water quality assessments will be conducted by implementing agencies to determine site-specific water quality impacts for individual transportation projects, as projects in the 2004 RTP are implemented.

The methodology for determining the significance of the impacts on water quality, water supply, and wastewater compares the future Plan conditions to the existing setting, as required in CEQA Guidelines Section 15126.2(a). The analysis uses the most recent and appropriate regional-scale data for the existing setting.

Determination of Significance

Direct impacts to water quality were evaluated using GIS to overlay the proposed projects of the 2004 RTP and associated growth on maps of the SCAG region's water resources. Additional data relating to water resources compiled within the GIS format included surface hydrology, 100-year flood plains, impaired water bodies identified by the SWRCB, and regional groundwater basins.

Long-term, regional-scale, cumulative impacts of the RTP on water quality were evaluated based on estimates of vacant land consumption based on the long-term regional growth forecast for 2030.

Impacts to water supply were assessed by comparing the existing water supplies to the expected water demand in 2030 with the Plan, in accordance with the CEQA Guidelines. Likewise, the PEIR analyzes impacts to wastewater services by comparing existing capacity of wastewater systems to the expected demand in future Plan conditions.

Comparison with the No Project

The analysis of water resources includes a comparison of the expected future conditions with the 2004 RTP to the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the expected effects of the 2004 RTP.

SIGNIFICANCE CRITERIA

A potentially significant adverse impact on water resources would occur if the proposed Plan would:

- Substantially degrade water quality compared to the existing conditions;
- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge;
- Substantially alter the existing drainage patterns, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;
- Substantially alter the existing drainage patterns, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation;
- Generate a substantial amount of wastewater that exceeds the region's available infrastructure's capacity to handle and dispose of the wastewater;
- Generate a substantial increase in the amount of potable water demand that exceeds the region's existing available supply and/or infrastructure capacity to provide water service; or;
- Result in the need to construct new water supply infrastructure.

IMPACTS AND MITIGATION MEASURES

Project-specific studies would be necessary to determine the actual potential for significant impacts on water resources resulting from implementation of the Plan. However, the following analysis identifies some general program-level impacts. Below are descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the 2004 RTP. Indirect impacts due to the changes in population distribution expected to occur due to the 2004 RTP's transportation investments, and transportation and land use policies are also discussed.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through its Intergovernmental Review Process.

Impact 3.12-1: Local surface water quality would potentially be degraded by increased roadway runoff created by RTP projects, potentially violating water quality standards associated with wastewater and stormwater permits. These projects would potentially alter the existing drainage patterns in ways that could result in substantial erosion or siltation.

Projects that increase impervious surface areas increase urban runoff, resulting in the transport of greater quantities of contaminants to receiving waters that may currently be impaired. Construction activities related to Plan projects may increase pollutant loads carried by stormwater runoff. For example, road cut erosion can increase long-term siltation in local receiving waters.

Highway runoff is a component of urban runoff contributing oil and grease, sediment, nutrients, heavy metals, and toxic substances. Table 3.12-11 lists the pollutants commonly associated with transportation.

Table 3.12-11: 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 compounds in deicing 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 materials, lubricating oil, metal plating, bushing wear, and brake linings
Nitrogen and Phosphorous	Motor oil additives, the atmosphere, fertilizer applications
Sulphates	Roadway beds, fuel and deicing salts
Zinc	Motor oil and tires
Grease and hydrocarbons	Spills and leaks of oil and n-paraffin lubricants, antifreeze, hydraulic fluids
Rubber	Tire wear
Sediment particulates	Pavement wear, the atmosphere, maintenance activities

Source: U.S. EPA, Office of Water. (1995). *Controlling Nonpoint Source Runoff Pollution from Roads, Highways and Bridges*. (EPA-841-F-95-008a). Washington D.C.

Figure 3.12-3 shows the impaired water bodies identified within the SCAG region. The SWRCB has begun the process of assigning TMDLs for each pollutant impacting currently impaired water bodies, allowing for pollution interactions that may be unique to each water body. A TMDL will provide a numerical threshold for each pollutant within each watershed to be used for regulating both point and non-point source discharges. Future methods for quantifying highway runoff will assist regulators with applying appropriate management practices in areas where highway runoff impacts impaired water bodies. The inclusion of runoff control measures in the design of future

roadway projects will improve water quality and eliminate further impairments of the local receiving waters.

As discussed above, the proposed highway, arterial and other improvement projects proposed in the 2004 RTP would increase impervious surfaces in the SCAG region. Table 3.12-12 provides the lane mile additions planned for each county. Assuming an average lane width of 12 feet, approximately 9,800 additional acres of impervious surface could be added. Some of the lane additions may be constructed using re-striping and existing right of way, reducing the contribution to increased impervious surfaces, so this estimate is conservative for these types of facilities. Rail lines and their associated structures would be expected to increase the amount of impervious surfaces as well. SCAG expects the proposed goods movement enhancement projects to consist of approximately 140 center lane miles of new facilities. The Maglev projects would add 275 elevated route miles, along with associated stations and other maintenance structures. The precise routes and the number and width of lanes are not yet determined. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width.

Table 3.12-12: New Regional Lane Miles by County*

County	Imperial	Los Angeles	Orange	Riverside	San Bernardino	Ventura	SCAG total
Freeway Lane Miles	26	404	441	272	735	62	**1,940**
Principal Arterial Lane Miles	0	325	487	490	421	49	**1,772**
Minor Arterial Lane Miles	32	332	23	431	637	40	**1,495**
Major Collector Lane Miles	0	124	16	344	249	4	**737**
HOV Lane Miles	7	270	41	189	235	3	**745**
Freeway Link Lane Miles	0	17	9	3	8	0	**37**
Total Lane Miles in each County	65	1,472	1,017	1,729	2,285	158	**6,726**
Average Potential Additional Impervious Acreage**	130	2,145	1,482	2,520	3,330	230	**9,837**

Source: SCAG. (2003). Regional Travel Demand Model. Los Angeles, CA.

*This analysis does not include transit projects, MagLev projects, goods movement enhancement projects, or CETAP corridors with unknown routes, widths and lane miles.

**Assumes an average lane width of 12 feet

Additional impervious surfaces would increase the potential for highway and other runoff pollutants to enter impaired receiving waters. Each project contributing to new impervious area would be subject to a Municipal Separate Storm Sewer System (MS4) permit requiring that pollutants be removed from the runoff to the maximum extent practicable. It is expected that TMDL requirements would be included in future MS4 permits, further strengthening a permit's controls of runoff.

Most of the proposed Plan projects would occur within watersheds that have impaired water bodies. Any increase in contaminant loading in these water bodies by constituents of concern appearing in a 303(d) list and contributed by a Plan project would be considered a significant Plan impact. Table 3.12-13 lists many of the impaired water bodies located within 150 feet of freeway, transit and freight rail projects proposed in the 2004 RTP. Maglev, goods movement

Table 3.12-13: Impaired Water Bodies (303(d)) Occurring Within 150 feet of a Freeway, Transit, or Freight Rail Project in the 2004 RTP

Impaired Water Body	Pollutant Constituents of Concern
Pico Kenter Drain	Ammonia, Copper, Enteric Viruses, High Coliform Count
Alamo River	Pesticides, Selenium
New River	1,2,4-trimethylbenzene, Chloroform, Dissolved Oxygen, m,p,-Xylenes, o-Xylenes, p-Cymene, p-DCB, Toluene, Trash
Coachella Valley Storm Channel	Pathogens
Imperial Valley Drains	Pesticides, Sedimentation, Selenium
Coyote Creek	Algae, Dissolved Copper, High Coliform Count, Dissolved Lead, Total Selenium, Dissolved Zinc
San Gabriel River	Algae, Dissolved Copper, High Coliform Count, Lead, Dissolved Zinc
San Jose Creek	Algae, High Coliform Count,
Walnut Creek Wash	pH, toxicity
Ballona Creek	Cadmium, ChemA, Chlordane, Dissolved Copper, DDT, Dieldrin, Enteric Viruses, High Coliform Count, Dissolved Lead, PCBs, pH, Sediment Toxicity, Selenium, Silver, Toxicity, Dissolved Zinc
Dominguez Channel	Aldrin, Ammonia, Benthic Community Effects, ChemA, Chlordane, Chromium, Copper, DDT, Dieldrin, High Coliform Count, Lead, PAHs, PCBs, Zinc
Medea Creek	Algae, High Coliform Count, Sedimentation/Siltation, Selenium, Trash
Las Virgenes Creek	High Coliform Count, Nutrients (algae), Orgnaic Enrichment/Low Dissolved Oxygen, Scum/Foam-unnatural, Sedimentation/Siltation, Selenium, Trash
Lindero Creek	Algae, High Coliform Count, Scum/Foam-unnatural, Selenium, Trash
Palo Comado Creek	High Coliform Count
Los Angeles River	Aluminum, Ammonia, Dissolved Cadmium, Dissolved Copper, High Coliform Count, Dichloroethylene/1,1-DCE, Lead, Nutrients (algae), Odors, Oil, pH, Scum/Foam-unnatural, Tetrachlroethylene/PCE, Trichloroethylene/TCE, Dissolved Zinc,
Compton Creek	Copper, High Coliform Count, Lead, pH
Rio Hondo	Copper, High Coliform Count, Lead, pH, Trash, Zinc
Arroyo Seco	Algae, High Coliform Count, Trash
Verdugo Wash	Algae, High Coliform Count, Trash
Burbank Western Channel	Algae, Ammonia, Cadmium, Odors, Scum/Foam-unnatural, Trash
Tujunga Wash	Ammonia, Copper, High Coliform Count, Odors, Scum/Foam-unnatural, Trash
Conejo Creek	Algae, Ammonia, Cadmium, ChemA, Chloride, Dacthal, DDT, Endosulfan, Nickel, Nutrients, Silver, Sulfates, TDS, Toxaphene
Ballona Creek Estuary	Chlordane, DDT, High Coliform Count, Lead, PAHs, PCBs, Sediment Toxicity, Zinc
Fox Barranca	Boron, Nitrate and Nitrite, Sulfates, Total Dissolved Solids
San Gabriel River Estuary	Abnormal Fish Histology
Cucamonga Creek	High Coliform Count
Lytle Creek	Pathogens
San Diego Creek	Chlorides, Metals, Nutrients, Pesticides, Salinity, Sedimentation, Total Dissolved Solids
Santa Ana River	Chlorides, Nutrients, Pathogens, Salinity, Total Dissolved Solids,

Source: SCAG analysis of State Water Resources Control Board. (2003). *2002 Clean Water Act Section 303(d) List of Water Quality Limited Segment*.

enhancement, and arterial projects would potentially affect impaired water bodies as well; however, the alignments for these projects are not developed, and the impacts to particular water bodies cannot be reliably identified.

Fill Materials

Several projects may impact water bodies by placing fill material within a stream channel. For example, several of the lane widening projects and new facilities could cross existing creeks or be expanded into wetland areas. These potential intrusions would be subject to permitting by the USACE and a RWQCB pursuant to Sections 404 and 401 of the CWA.

Construction

Construction activities can be a major source of sediment loading and hydrocarbon contamination in local waterways. Unprotected soil easily erodes with rain water. In addition, fueling procedures and maintenance of heavy equipment on construction sites can spill diesel and oil and grease. The SWRCB has adopted a state-wide stormwater permit for construction sites over one acre. By 2003, a new construction permit requires compliance by construction projects one acre or more in size. Prior to commencement of construction activities, a project applicant must submit a Storm Water Pollution Prevention Plan (SWPPP) to the SWRCB that identifies the BMPs that will be used in the planned project construction. The applicant must receive approval of the SWPPP and submit a Notice of Intent prior to initiating construction. Each individual project in the 2004 RTP is expected to adopt BMPs appropriate to local conditions and to the proposed construction techniques that will reduce pollution runoff.

The proposed Plan's new roadway projects would create new impervious areas. Without mitigation, the runoff from these new impervious areas would contribute to local water impairments by degrading the water quality of the receiving waters, both in the short term (during project construction) and in the long term (during the project's operation). This would be a significant impact.

Mitigation Measures

In addition to **MM 3.7-7a** and **MM 3.9-2a**, the following mitigation measures are recommended:

MM 3.12-1a: Transportation improvements shall comply with federal, state, and local regulations regarding stormwater management. State-owned highways and other transportation facilities are subject to compliance with a statewide stormwater permit issued to Caltrans.

MM 3.12-1b: Project implementation agencies shall ensure that new facilities include water quality control features such as drainage channels, detention basins, and vegetated buffers to prevent pollution of adjacent water resources by polluted runoff. Wherever feasible, detention basins shall be equipped with oil and grease traps and other appropriate, effective and well maintained control measures.

MM 3.12-1c: Project implementation agencies shall ensure that operational best management practices for street cleaning, litter control, and catch basin cleaning are implemented to prevent water quality degradation.

MM 3.12-1d: SWPPPs shall be submitted to the SWRCB when proposed transportation improvement projects require construction activities. In these activities BMPs shall be followed to manage site erosion and spill control.

MM 3.12-1e: Projects requiring the discharge of dredged or fill materials into U.S. waters, including wetlands, shall comply with sections 404 and 401 of the CWA including the requirement to obtain a permit from the U.SACE and the governing RWQCB.

MM 3.12-1f: Long-term sediment control shall include an erosion control and revegetation program designed to allow reestablishment of native vegetation on slopes and undeveloped areas.

MM 3.12-1g: Drainage of roadway runoff should, wherever possible, be designed to run through vegetated median strips, contoured to provide adequate storage capacity and to provide overland flow, detention and infiltration before it reaches culverts. Detention basins and ponds, aside from controlling runoff rates, can also remove particulate pollutants through settling.

Significance After Mitigation

The mitigation measures would not fully mitigate water quality degradation, violation of water quality standards, or prevent erosion or siltation. The impact remains **significant.**

Impact 3.12-2: Increased impervious surfaces due to transportation projects would reduce groundwater infiltration. The proposed 2004 RTP would include additional impervious surfaces installed through new roadway projects. Table 3.12-12 provides information on the lane mile additions expected in each county. With the implementation of the 2004 RTP, approximately 6,700 new lane miles would be added to the region. These additions would include new facilities, additional right-of-way on existing facilities and/or re-striping of existing facilities. Conservatively, each lane addition was assumed to have an average width of 12 feet. The area of additional impervious surface has been calculated and appears in Table 3.12-12. Rail projects involving construction of new rail lines, new stations, and upgrades to existing stations are not included in this calculation. SCAG expects the proposed goods movement enhancement projects to consist of approximately 140 center lane miles of new facilities. The route alignments and the number and width of lanes are not yet determined. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width. Where these projects involve installation of additional impervious surfaces, they would potentially have adverse impacts on groundwater infiltration.

Under natural conditions, vegetation intercepts and retains rainfall before infiltration or runoff occurs. Without hard-surfaced land areas, this hydrology cycle favors groundwater recharge. With the hard surface of a roadway this infiltration dynamic is significantly impeded. The magnitude of this effect is reported by studies indicating that the volume of stormwater washed off one-acre of roadway is about sixteen times greater than that of a comparably sized meadow.[26]

The increase in impervious surfaces due to additional miles of roadway, in addition to urban development associated with the population distribution in 2030 would increase runoff and potentially affect groundwater recharge rates.

Mitigation Measures

MM 3.12-2a: Project implementation agencies shall avoid designs that require continual dewatering where feasible.

MM 3.12-2b: Project implementation agencies shall ensure that projects that do require 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 Uniform Building Code.

MM 3.12-2c: Detention basins, infiltration strips, and other features to control surface runoff and facilitate groundwater recharge shall be incorporated into the design of new transportation projects.

Significance After Mitigation

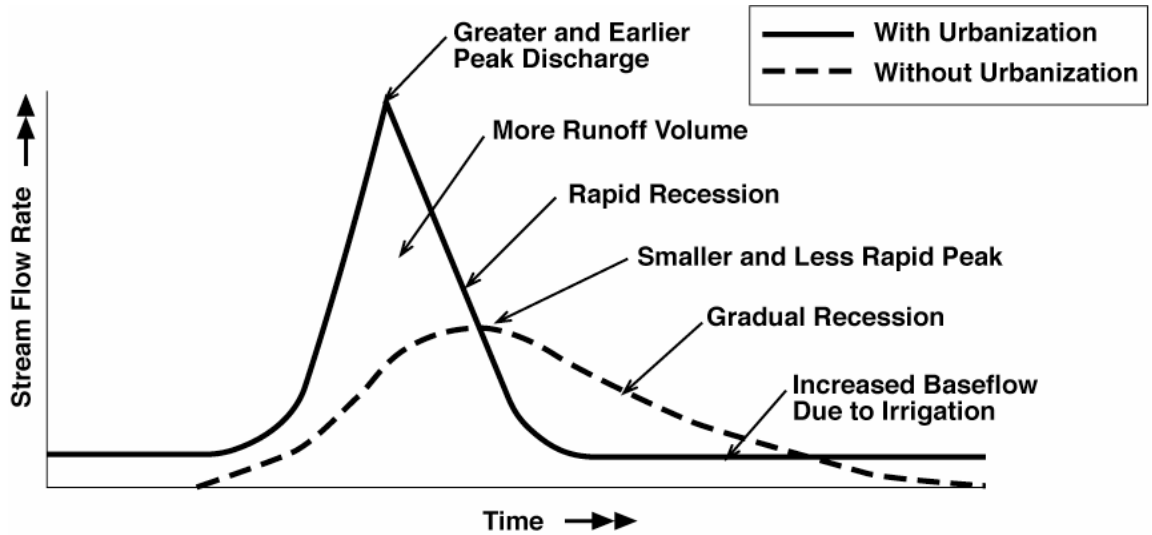
Implementation of these mitigation measures would reduce the regional impact to **less than significant.**

Impact 3.12-3: The 2004 RTP would potentially increase flooding hazards by placing structures such as transportation investments on alluvial fans and within 100-year flood hazard areas. The proposed 2004 RTP could alter existing drainage patterns or substantially increase the rate or amount of surface runoff in a manner that would result in flooding or produce or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.

[26] Schueler, T.R. (1994). The importance of imperviousness. *Watershed Protection Techniques 1(3)*: 100-111. Retrieved August 28, 2003, from http://www.stormwatercenter.net/Practice/1-Importance%20of%20Imperviousness.pdf.

Storm water 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. Increased runoff velocity can promote scouring of existing drainage facilities, reducing system reliability and safety. Figure 3.12-10 depicts a typical hydrograph showing the effects of urbanization on peak flow rates.

Figure 3.12-10: Comparison of Typical Urbanized and Non-Urbanized Hydrographs



Source: Schueler, Thomas. (1997). *Controlling urban runoff: A practical manual for planning and designing urban BMPs.* Metropolitan Washington Council of Governments, Washington, D.C.

The 2004 RTP transportation projects would result in increased impervious surfaces. Additional impervious surfaces increase stormwater runoff volumes and peak flow rates. This increase has the potential to create or contribute runoff flows that would exceed the capacity of existing or planned stormwater drainage systems. In addition, placing new structures within an existing floodplain can impede flood waters, altering the flood risks both upstream and downstream.

Natural desert conditions promote runoff that can cause flash flooding. In those areas of the SCAG region where soils have naturally low permeability and are subject to quick saturation, high rain volumes remain on the surface as runoff. When highways are placed within these areas of an existing flood plain, the public is exposed to the hazards of flash flooding. Figure 3.12-7 (in Chapter 8.0 Figures) shows the location of the major floodplains in the SCAG region. Many of the proposed highway projects would pass through these floodplain areas as currently delineated.

The highway and arterial projects proposed in the 2004 RTP mostly include widening existing highways and constructing new interchanges, new highway segments, new rail lines and the Maglev projects. Table 3.12-12 summarizes additional lane miles proposed for each county and

provides a conservative calculation (as some lane additions may be accomplished through lane re-striping) of increased impervious surfaces proposed by the projects based on lane miles only. Some of the proposed transit projects would involve construction of new rail lines, new stations, and upgrades to existing stations, and are not included in the calculation presented in Table 3.12-12. SCAG expects the proposed goods movement enhancement projects to consist of approximately 140 center lane miles of new facilities. The route alignments and the number and width of lanes are not yet determined. The CETAP corridors (described in 2.0 Project Description) would include additional route miles of unknown alignment and width. These projects would increase the amount of impervious surfaces in the SCAG region, adding to the existing runoff of stormwater.

Placing new structures within an existing floodplain can impede flood waters, altering the flood risks both upstream and downstream. Road improvements in the Plan are located within 150 feet of approximately 4,500 acres of identified 100-year flood zones and 7,200 acres of identified 500-year flood zones. The flooding risks associated with projects located in these flood zones can be modified with appropriate design and alignment considerations.

Placing new structures within an existing floodplain can impede flood waters, altering the flood risks both upstream and downstream. Road improvements in the Plan are located within 150 feet of approximately 4,500 acres of identified 100-year flood zones and 7,200 acres of identified 500-year flood zones. The flooding risks associated with projects located in these flood zones can be modified with appropriate design and alignment considerations.

Mitigation Measures

In addition to Mitigation Measures 3.7-6a through 3.7-6d, the following mitigation measures are recommended:

MM 3.12-3a: Natural riparian conditions near projects shall be maintained, wherever feasible, to minimize the effects of stormwater flows at stream crossings.

MM 3.12-3b: Prior to construction, a drainage study shall be conducted for each new project. Drainage systems shall be designed to maximize the dissipation of storm flow velocities with the use of detention basins and vegetated areas, measures that will reduce storm flow risks to areas downstream of a project. Projects shall consider designs for the lateral transmission of stormwater and other similar means to minimize the risks of upstream flooding.

MM 3.12-3c: All roadbeds for new highway and rail facilities should be elevated at least one foot above the 100-year base flood elevation. Since alluvial fan flooding is not often identified on FEMA flood maps, the risk of alluvial fan flooding shall be evaluated and projects shall be sited to avoid alluvial fan flooding where feasible.

MM 3.12-3d: Transportation improvements shall comply with local, state, and federal floodplain regulations. Projects requiring federal approval or funding shall comply with Executive Order 11988 on Floodplain Management, which requires avoidance of incompatible floodplain

development, restoration and preservation of the natural and beneficial floodplain values, and maintenance of consistency with the standards and criteria of the National Flood Insurance Program.

MM 3.12-3e: Improvement projects on existing facilities shall include upgrades to 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. System designs shall be completed to eliminate increases in peak flow rates from current levels.

Significance After Mitigation

After implementation of the mitigation measures, the 2004 RTP projects would regionally have a **less than significant** impact.

Cumulative Impacts

A cumulative impact consists of an impact that is created as a result of the combination of the 2004 RTP together with other projects causing related impacts.

IMPACTS AND MITIGATION MEASURES

Cumulative Impact 3.12-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to water quality.

The growth projection associated with the 2004 RTP would substantially increase the amount of urbanized land in the SCAG region. The amount of new urbanized acreage (consuming previously vacant land) would be on the order of several hundred thousands of acres. Pollutant loading in surface and groundwater correlates closely with land use patterns. Suspended sediments, oxygen-demanding substances, and oil and grease would constitute a substantial part of these pollutant loads. Total nitrogen and total phosphorous would increase less than these other pollutants, but would have the potential for influencing algal growth, reducing dissolved oxygen, and affecting aquatic species abundance and composition.[27]

Mitigation Measures

Mitigation Measures 3.12-1a through 3.12-1g shall be applied to all urban development projects, as feasible, in addition to the following measure.

[27] Keller, Arturo A. and Yi Zheng. (2003). Personal communication. University of California. Santa Barbara, CA.

MM 3.12-4a: SCAG shall continue to work with local jurisdictions and water quality agencies, through its Water Policy Task Force and other means, to encourage regional-scale planning for improved water quality management and pollution prevention. Future impacts to water quality shall be avoided through cooperative planning, information sharing, and comprehensive pollution control measure development within the SCAG region. This cooperative planning shall occur during the update of the Water Resources and Water Quality chapters of SCAG's *RCPG* and through SCAG's Water Policy Task Force. This task force offers an opportunity for local jurisdictions and water agencies to share information and strategies to plan for water quality in the region.

Significance After Mitigation

The urban development expected by 2030 would create adverse water quality and waste discharge conditions and/or unfavorably alter existing drainage patterns in a manner that would result in substantial erosion or siltation. The 2004 RTP's influence on growth distribution is a cumulatively considerable contribution to this **significant** impact.

Cumulative Impact 3.12-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to stormwater infiltration and groundwater recharge.

The addition of 6 million people to the SCAG region would require increased urban development for housing, employment centers, and other services. The amount of new urbanized acreage (consuming previously vacant land) would be on the order of hundreds of thousands of acres. The enlarged impervious surfaces associated with this urban development would potentially reduce groundwater recharge.

Mitigation Measures

Mitigation Measures 3.12-2a through 3.12-2c shall be applied to all urban development projects, as feasible, in addition to the following measure.

MM 3.12-5a: SCAG shall continue to work with local jurisdictions and water agencies, through its Water Policy Task Force and other means, including the update of the Water Quality and Water Resources chapters for SCAG's *RCPG*, to encourage regional-scale planning for improved stormwater management and groundwater recharge. Future adverse impacts shall be avoided through cooperative planning, information sharing, and comprehensive implementation efforts within the SCAG region. SCAG's Water Policy Task Force offers an opportunity for local jurisdictions and water agencies to share information and strategies for improving regional performance in these efforts.

Significance After Mitigation

The urban development expected by 2030 would potentially affect stormwater infiltration and groundwater recharge. Future planning and implementation efforts may reduce the significance of this impact. **However, given current conditions, the 2004 RTP's effects on stormwater infiltration and groundwater recharge would contribute to a significant impact on regional water resources.**

Cumulative Impact 3.12-6: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in flooding hazard impacts.

The amount of new urbanized acreage (consuming previously vacant land) would be on the order of hundreds of thousands of acres. The additional urbanized acreage expected by 2030 could be located in areas with the potential for alluvial fan flooding or other flood hazards.

Mitigation Measures

Mitigation Measures 3.12-3a through 3.12-3e shall be applied to all urban development projects, as feasible.

Significance After Mitigation

Urban development expected by 2030 would potentially result in additional structures in areas with flood hazards. Future planning efforts may reduce the significance of this impact; however, to assume that all flood hazards would be avoided would be speculative. The 2004 RTP's effects on population distribution and its associated contribution to the impact of flooding hazards are **significant**.

Cumulative Impact 3.12-7: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the need for increased wastewater treatment capacity in the region by 2030.

The proposed Plan influences population growth, resulting in an indirect and cumulative impact on wastewater treatment services.

The average wastewater generation rate in each county[28] was applied to the expected population growth in each county and compared to the remaining wastewater treatment capacity derived from the data in Table 3.12-8. Broadly assuming that wastewater capacity can be shared among the agencies in each county, it is estimated that Imperial, Riverside, and San Bernardino counties would outgrow their wastewater treatment capacity by the year 2030.

To determine the significance of the impact, wastewater treatment capacities needed in 2030 must be compared to the existing capacities only in accordance with CEQA Guidelines. (This analysis does not consider existing plans to build new facilities.)

Mitigation Measures

MM 3.12-7a: Local jurisdictions should encourage new development and industry to locate in those service areas with existing wastewater infrastructure and treatment capacity.

MM 3.12-7b: Wastewater treatment agencies are encouraged to have expansion plans, approvals and financing in place once their facilities are operating at 80 percent of capacity. Through the update to the Water Quality and Water Resources chapter of SCAG's *RCPG*, SCAG shall provide opportunities for information sharing and program development.

MM 3.12-7c: Local jurisdictions should promote reduced wastewater system demand by:

- designing wastewater systems to minimize inflow and infiltration to the extent feasible,
- reducing overall source water generation by domestic and industrial users,
- deferring development approvals for industries that generate high volumes of wastewater until wastewater agencies have expanded capacity.

Significance After Mitigation

The mitigation measures would lessen the impacts on wastewater treatment capacity in the region; however, they are not expected to prevent an imbalance between the demand for regional capacity and existing regional capacity. The 2004 RTP would make a cumulatively considerable contribution to this **significant** impact.

Cumulative Impact 3.12-8: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to an increased demand for water supply and its associated

[28] Southern California Association of Governments. (1994). *Regional Transportation Plan and Chapters of the Regional Comprehensive Plan Final Environmental Impact Report.* Los Angeles, CA.

infrastructure. Comparing 2030 demands to existing supplies does not fully reflect the ongoing water planning conducted by water agencies in the region. While existing supplies and infrastructure may not be sufficient to meet expected 2030 demands, most water agencies have plans in place to respond to future growth. However, the *existing* water supplies and infrastructure would not be sufficient to meet the expected demand in 2030.

The volume of water and water delivery infrastructure currently available within the SCAG region would not be sufficient to meet the future multiple dry year or average year demand at 2030. As population increases in the SCAG region, the demand for municipal water will increase. Increased commercial and industrial land uses will also increase water demand. 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 by 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, ocean desalination, conservation, water transfers, and groundwater banking.

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. Some water agencies project average year water deficits by the year 2020 if current management and supply efforts are not augmented. Other agencies project no deficits owing to the development of new supplies. Over 90 percent of the projected population in the SCAG region in 2030 is within the Metropolitan service area.

Supplying the water necessary to meet future demand and/or minimizing that demand would mitigate the effect to less than significant levels. Water districts provide water for the growth planned and authorized by the appropriate land use authority. Nonetheless, since these measures are not yet in place, and some areas currently are reporting future deficits, the impact remains significant.

Each water district develops its own policy for determining its planning horizon and for acquiring and building water facilities. Numerous measures that would mitigate water shortages are currently being implemented, including required planning efforts, water availability assurances to new development, water transfers, groundwater banking projects, recycling projects, desalination projects, conservation programs and tiered water rates. The California State Legislature recently approved two laws (SB 610 and SB 221) that require future development to obtain written assurances from water agencies of reliable future water supplies for a large-scale project prior to project approval. Numerous regional planning efforts are underway to avoid water shortages in the future.

MWD prepared the Report on Metropolitan Water Supplies in March 2003 that updated its 2000 Regional Urban Water Management Plan and provided regional assurances SB 610 and SB 221 requirements will be met. The 2003 report identified existing and projected water supplies for the service area including supplies under development and concluded that the agency had sufficient, reliable water supplies to meet water demand in its service area through the year 2025.

Mitigation Measures

MM 3.12-8a: SCAG shall facilitate local water agencies' informing local jurisdictions of their continued efforts to evaluate future water demands and establish the necessary supply and infrastructure, as documented in their Urban Water Management Plans.

MM 3.12-8b: SCAG shall facilitate local water agencies' informing local jurisdictions of their continued efforts to develop supplies to meet projected demand in 2030.

MM 3.12-8c: SCAG shall facilitate information-sharing about the kind of regional coordination throughout California and the Colorado River Basin that develops and supports sustainable growth policies.

MM 3.12-8d: Future impacts to water supply shall be minimized through cooperation, information sharing, and program development during the update of the Water Resources chapter of SCAG's *RCPG* and through SCAG's Water Policy Task Force. This task force presents an opportunity for local jurisdictions and water agencies to share information and strategies (such as those listed above) about their on-going water supply planning efforts, including the following types of actions:

- Minimize impacts to water supply by developing incentives, education and policies to further encourage water conservation and thereby reduce demand.
- Involve the region's water supply agencies in planning efforts in order to make water resource information, such as water supply and water quality, location of recharge areas and groundwater, and other useful information available to local jurisdictions for use in their land use planning and decisions.
- Provide, as appropriate, legislative support and advocacy of regional water conservation, supply and water quality projects.
- Promote water-efficient land use development.

The Water Policy Task Force and the update to SCAG's *RCPG* present an opportunity for SCAG to partner with the region's water agencies in outreach to local government on important water supply issues. SCAG provides a unique opportunity to increase communication between land use and water planners. The goals of the Task Force would not be to duplicate existing efforts of the water agencies.

Significance After Mitigation

Full implementation of these water supply mitigation measures would provide an adequate and reliable future water supply and infrastructure. The various water agencies update their Urban Water Management Plans to ensure that planning for the water needs of future growth is accommodated in a timely manner. However, CEQA requires the determination of significance to be based on a comparison between *existing* water supply and infrastructure and expected future demand. Although ensuring a reliable water supply for urban and other water demands in 2030 is

probable, the current, existing water supply and infrastructure would not be able to support the population in the Plan in 2030. Through its influence on regional growth, the 2004 RTP would make a cumulatively considerable contribution to this **significant** impact.

Comparison with the No Project Alternative

In the No Project alternative, the population of the SCAG region grows by 6 million people, however no regional transportation investments are made above the existing programmed projects. The population distribution follows past trends, uninfluenced by additional transportation investments. The number of households and the employment are less than the Plan due to the absence of the economic benefits conferred by the Plan.

Direct Impacts

With fewer transportation projects than the 2004 RTP, the direct effects of the No Project Alternative on water resources would be reduced when compared with the 2004 RTP. As the currently planned projects included in the No Project alternative (those transportation projects that would occur regardless of the 2004 RTP adoption) are built, the impacts owing to increased roadway runoff and drainage patterns would remain significant. The impacts to groundwater infiltration caused by the increased impervious surfaces of roadway projects, and to increased flooding hazards would be less than significant (with the mitigation measures described for Impacts 3.12-2 through 3.12-3). The proposed Plan's transportation project related impacts to water quality, groundwater recharge, and flooding would be greater than the No Project Alternative.

Cumulative Impacts

Cumulatively, both the Plan and the No Project would potentially impact water quality, groundwater recharge, flood hazards, wastewater treatment capacity, and water supply. In the No Project alternative, new development would occur to accommodate the same increase in population as projected for the proposed Plan. To reduce land consumption, the Plan includes land use measures that encourage centers-based development, redevelopment and infill where feasible. These measures are absent in the No Project alternative. However, the Plan also includes additional households and jobs associated with the economic benefits of the Plan. Since these are offsetting tendencies, it is expected that the No Project alternative would consume approximately the same acreage of vacant land as the Plan.

Because of the similar degree of urbanization and vacant land consumption, the cumulative impacts associated with urban development would be similar between the Plan and the No Project alternative.

The cumulative impacts on wastewater service capacity, due to the growth expected between the base year and 2030, would be approximately the same in the No Project alternative and the Plan. Because the total population in each county is constant between the No Project alternative and the Plan, Imperial, Los Angeles, Riverside and San Bernardino counties would be at or above their existing wastewater treatment capacities. Though it is expected that new treatment

capacities will be added as future demand requires, the relation between future growth and current treatment capacities in the No Project alternative and in the Plan creates a finding of significant impact on wastewater services at this time.

The No Project alternative's cumulative impacts to water quality due to urban development patterns would be similar to those associated with the 2004 RTP.

The No Project Alternative would distribute growth among water supply agencies similarly to the Plan (see Table 3.12-5). The *existing* water supply and infrastructure would not be able to support the population in the No Project alternative in 2030. The proposed Plan's impacts on water supply would be approximately the same as the No Project alternative.

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3.13 PUBLIC SERVICES AND UTILITIES

INTRODUCTION

This section evaluates the public services and utilities in the SCAG region that may be affected by the 2004 RTP. The potential impacts of the 2004 RTP on the public resources including police protection services, fire protection services, school facilities, and solid waste removal are identified. The chapter also identifies mitigation measures for the impacts and evaluates the residual effects.

ENVIRONMENTAL SETTING

The environmental setting describes the public services and utilities that may be affected by the 2004 RTP. The environmental setting addresses police protection services, fire protection services, education facilities, and solid waste disposal in the region.

Police Protection Services

Individual County Sheriff Departments are responsible for providing police protection within the unincorporated areas of the county as well as those incorporated cities that contract with the County Sheriff to protect their city. Typically, the County Sheriffs assist newly incorporated municipalities serve their citizens by offering an established police force to protect the jurisdiction as it grows.

City police departments are found mostly in the older and larger SCAG cities. The CHP serves the State Route and Interstate highway system throughout the SCAG region. The CHP cooperates with County and City Police Departments when the need arises. Table 3.13-1, below, shows the number of jurisdictions directly providing police services and the number of jurisdictions contracting with the counties.

Fire Protection Services

County Fire Departments provides fire prevention/suppression and emergency services to the unincorporated areas of the county as well as those municipalities that contract with the County for fire protection. As with police services, City Fire Departments are more prevalent among older and larger municipalities. Table 3.13-2, below, shows the number of jurisdictions directly providing fire services and the number of jurisdictions contracting with the counties.

Educational Facilities

There are almost 3.2 million students enrolled from kindergarten to twelfth grade in the SCAG region. Almost 150,000 teachers teach these students. Table 3.13-3 lists the student and teacher totals by county. Table 3.13-4 displays the average current construction costs for new school facilities.

Table 3.13-1: Police Service Providers for Jurisdictions within SCAG Counties

County	Jurisdictions Served By	
	County	City
Imperial	0	7
Los Angeles	43	46
Orange	12	22
Riverside	13	12
San Bernardino	5	20
Ventura	6	5

Sources: Imperial County Sheriff Department (personal communication August 15, 2003).
Los Angeles County Sheriff Department. (n.d.). Patrol stations. Retrieved August 15, 2003, from http://www.lasd.org/stations/station_index.html.
Orange County Sheriff-Coroner Department. (2000). *OCSD patrol areas*. Retrieved August 15, 2003, from http://www.ocsd.org/
Riverside County Sheriff Department. (n.d.). *City/community-station/agency listing*. Retrieved August 15, 2003, from http://www.co.riverside.ca.us/sheriff/department/city-com.htm.
Wendy Britz (personal communication August 15, 2003).
Ventura County Sheriff's Department. (n.d.) *Patrol services*. Retrieved August 15, 2003, from http://www.vcsd.org/patrol.htm

Table 3.13-2: Fire Protection Service Providers for Jurisdictions within SCAG Counties

County	Jurisdictions Served By	
	County	City
Imperial	3	4
Los Angeles	57	32
Orange	23	12
Riverside	16	9
San Bernardino	5	20
Ventura	6	5

Sources: Imperial County Emergency Services (personal communication August 15, 2003).
County of Los Angeles Fire Department. (n.d.). *2001 statistical summary*. Retrieved August 15, 2003, from http://www.lacofd.org/CRO/pfd/2001%20Stat%20Summary.pdf.
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San Bernardino County Fire Department. (n.d.). *About our fire department*. Retrieved August, 15, 2003, from http://www.sbcfire.org/.
Ventura County Fire Department. (n.d.). *Ventura county fire protection district annual report 2001-2002*. Retrieved August 15, 2003, from http://fire.countyofventura.org/publicinformation/publications/annual_reports/annualreport2002.pdf.

Solid Waste Disposal and Transfer Facilities

Over the past ten years, disposal tonnage has decreased significantly in the SCAG region as the emphasis on recycling to meet the requirements of AB 939 has served to divert tonnage from landfills and conserve landfill capacity. Table 3.13-5 shows data from the California Integrated Waste Management Board (CIWMB) regarding the number of tons disposed in the year 2000 for each county in the SCAG region.

Table 3.13-3: Kindergarten through Grade 12 Enrollment and Teachers in the SCAG Region for the 2002-03 School Year (SY)

County	2002-03 SY Kindergarten-Grade 12 Enrollment	2002-03 SY Teachers
Imperial	34,420	1,744
Los Angeles	1,736,248	82,447
Orange	512,105	23,659
Riverside	349,607	16,259
San Bernardino	407,228	18,949
Ventura	144,352	6,777
SCAG Region	**3,183,960**	**149,835**

Source: California Department of Education, Educational Demographics Unit. (2003, August 18). *Enrollment in California public schools by county by district by grade 2002-2003* [Data file]. Available from California Department of Education Web site, http

California Department of Education, Educational Demographics Unit. (2003, August 18). *Number of teachers in California public schools by county, district, gender and ethnic group, 2002-03* [Data file]. Available from California Department of Education W

Table 3.13-4: Construction Costs for New Schools

Type of School	Cost Per Student*	Students Per School	Construction Cost Per School	Square Feet Per Student	School Site Size (Acres)**	Cost Per Square Foot	Land Cost at 25% of Construction Cost	Total Cost (Millions $)
Elementary	$12,664	600	$7,598,400	71	9.6	$178	$1,899,600	$9.50
Middle	$13,198	1,000	$13,196,800	85	20.9	$155	$3,299,200	$16.50
High	$17,424	1,800	$31,363,200	92	44.5	$189	$7,840,800	$39.20

* Costs based on historical funding provided in the School Facility Program and the required local match. Includes design fees, furniture and equipment, and construction.

** Based on the number of students per school and the guidelines in School Site Analysis and Development, 2000 Edition.

Source: California Department of Education. (2003). School facilities. In *Fact book 2003-Handbook of education information* (pp.90). Sacramento, CA: Author.

Table 3.13-5: Tons Disposed in the SCAG Region

County	2000 Total
Imperial	184,333
Los Angeles	10,408,422
Orange	4,748,572
Riverside	2,036,579
San Bernardino	1,069,438
Ventura	912,233
SCAG Region	19,359,577
California	36,954,946

Source: California Integrated Waste Management Board. (2002, October 11). *2000 county summary tonnage report*. Retrieved February 3, 2003, from http://www.ciwmb.ca.gov/Landfills/tonnage/2000/County.htm.

In viewing facilities on a county-by-county basis, it is important to note that landfills in one county may import waste generated elsewhere. Currently, Orange County offers capacity to out-of-county waste at a “tipping fee” low enough to attract waste from Los Angeles and San Bernardino Counties. The expansion of the El Sobrante Landfill, in western Riverside County, was approved

with an allowance for this facility to accept out-of-county waste. On occasion over the past several years, waste generated in Los Angeles County has been disposed of at the Simi Valley Landfill in Ventura County. Table 3.13-6 provides detailed information on permitted active or planned solid waste landfills in the SCAG Region.

Table 3.13-6: Permitted Active or Planned Solid Waste Landfills in the SCAG Region

Solid Waste Landfill	County	Closure Date	Permitted Throughput (Tons/Day)	Remaining Capacity (Cubic Yards)	Remaining Capacity Date	Permitted Capacity (Cubic Yards)
Imperial Solid Waste Site	Imperial	8/1/2022	130	292,814	5/21/2001	1,936,000
Calexico Solid Waste Disposal Site	Imperial	12/31/2142	150	1,961,536	5/21/2001	850,000
Ocotillo Solid Waste Site	Imperial	3/1/2004	9	14,134	1/1/2000	516,267
Holtville Solid Waste Site	Imperial	8/1/2012	20	39,773	1/1/2000	654,800
Palo Verde Solid Waste Site	Imperial	6/30/2029	5	96,162	5/21/2001	516,000
Brawley Cut and Fill Site	Imperial	2/27/2007	75	644,879	5/21/2001	2,044,000
Niland Solid Waste Site	Imperial	11/1/2008	55	103,554	5/21/2001	131,000
Hot Spa Solid Waste Site	Imperial	3/1/2027	10	78,605	1/1/2000	516,266
Salton City Solid Waste Site	Imperial	2/1/2019	10	115,305	5/21/2001	2,581,300
Picacho Cut And Fill Site	Imperial	1/1/2000	15	105,845	5/21/2001	645,333
Allied Imperial Landfill	Imperial	1/1/2012	1,135	3,706,958	8/9/2001	4,324,200
Monofill Facility	Imperial	1/1/2011	500	201,339	5/18/2001	514,000
Mesquite Regional Landfill	Imperial	12/31/2096		970,000,000	5/30/2001	970,000,000
Antelope Valley Public Landfill I	Los Angeles	7/1/1999	1,400	2,978,143	6/6/2001	6,480,000
Scholl Canyon Sanitary Landfill	Los Angeles	1/1/2019	3,400	18,229,167	5/25/2001	69,200,000
Azusa Land Reclamation Co. Landfill	Los Angeles	1/1/2025	6,500	34,100,000	3/31/1996	66,670,000
Burbank Landfill Site No. 3	Los Angeles	1/1/2053	240	5,048,000	6/7/2001	8,200,000
Lancaster Landfill and Recycling Center	Los Angeles	8/2/2012	1,700	22,645,000	6/6/2001	22,645,000
Chiquita Canyon Sanitary Landfill	Los Angeles	11/24/2019	6,000	26,024,360	6/15/2001	45,889,550
Puente Hills Landfill #6	Los Angeles	11/1/2003	13,200	20,200,000	10/12/2001	106,400,000
Calabasas Sanitary Landfill	Los Angeles	1/1/2028	3,500	25,400,000	1/1/2002	69,700,000
Pebbly Beach (Avalon) Disposal Site	Los Angeles	1/1/2033	49	0	1/30/2002	143,142
San Clemente Island Landfill	Los Angeles	1/1/2032	82	209,816	6/7/2001	235,459
Sunshine Canyon SLF County Extension	Los Angeles	1/1/2004	6,600	16,000,000	5/30/2001	23,720,000
Savage Canyon Landfill	Los Angeles	1/1/2025	350	8,345,437	4/1/2001	20,500,000
Bradley Landfill West And West Extension	Los Angeles	1/1/2007	10,000	4,725,968	3/5/2002	38,600,000
Prima Deshecha Sanitary Landfill	Orange	12/31/2040	4,000	89,400,000	6/7/2001	81,000,000
Olinda Alpha Sanitary Landfill	Orange	12/31/2013	8,000	50,242,370	12/31/2001	74,900,000
Frank R. Bowerman Sanitary LF	Orange	12/31/2022	8,500	81,600,000	6/7/2001	117,000,000
Badlands Disposal Site	Riverside	1/1/2018	4,000	15,036,809	7/30/2001	27,959,140
Lamb Canyon Disposal Site	Riverside	1/1/2024	1,900	9,179,274	7/30/2001	18,496,797
Edom Hill Disposal Site	Riverside	1/1/2003	2,651	1,587,085	7/30/2001	10,038,052
Oasis Sanitary Landfill	Riverside	1/1/2086	41	151,372	7/30/2001	870,000
Desert Center Landfill	Riverside	1/1/2011	60	36,522	7/30/2001	117,032
Blythe Sanitary Landfill	Riverside	5/31/2034	400	2,746,023	7/30/2001	6,123,000
Mecca Landfill II	Riverside	1/1/2005	400	30,407	7/30/2001	372,480
El Sobrante Landfill	Riverside	1/1/2030	10,000	3,674,267	6/6/2001	184,930,000
Eagle Mountain Landfill	Riverside			559,694,000	3/21/2001	
California Street Landfill	San Bernardino	9/1/2007	350	473,888	5/1/2001	4,000,000
Victorville Refuse Disposal Site	San Bernardino	9/1/2005	1,600	721,913	7/3/2001	7,700,000
Barstow Refuse Disposal Site	San Bernardino	1/1/2012	525	218,492	7/3/2001	3,580,000
Colton Refuse Disposal Site	San Bernardino	1/1/2006	3,100	380,716	7/3/2001	13,297,000
Mid-Valley Sanitary Landfill	San Bernardino	4/1/2033	7,500	694,058	7/3/2001	62,000,000
Landers Disposal Site	San Bernardino	1/1/2007	381	463,785	7/3/2001	3,080,000
USMC - 29 Palms Disposal Site	San Bernardino	1/1/2007	57	435,387	8/25/1998	2,195,000
Fort Irwin Sanitary Landfill	San Bernardino	1/1/2405	100	14,738,590	5/30/2001	19,000,000
Mitsubishi Cement Plant Cushenbury L.F.	San Bernardino	1/1/2034	40	227,000	5/24/2001	520,400
San Timoteo Solid Waste Disposal Site	San Bernardino	5/1/2016	1,000			20,400,000
Toland Road Landfill	Ventura	5/31/2027	1,500	20,796,998	6/1/2001	30,000,000
Simi Valley Landfill and Recycling Center	Ventura	6/27/2022	3,000	9,473,131	6/15/2001	43,500,000

Source: California Integrated Waste Management Board. (2003). Solid waste information system. Retrieved May 19, 2003, from http://www.ciwmb.ca.gov/swis/Search.asp.

To serve future need, two major remote desert landfills have obtained operating permits and CEQA/NEPA clearance. Both landfills are designed to accept waste-by-rail and have sufficient capacity to serve a large portion of the region's future disposal needs. The proposed Eagle Mountain Landfill is located in the eastern Riverside County desert, approximately 50 miles west

of the Arizona border and 10 miles north of I-10. It has a capacity of almost 560 million cubic yards. The proposed Mesquite Regional Landfill, located near Glamis in Imperial County, is even larger, with a capacity of 970 million cubic yards. In addition, other waste-by-rail facilities are available outside of the region.

Waste Diversion and Recycling

Since the enactment of AB 939 in 1989, local governments have implemented recycling programs on a widespread basis, making efforts to meet the 25% and 50% diversion mandates of AB 939. Statewide, the CWIMB reports that diversion increased from 10% in 1989 to 42% in 2000 and to 48% in 2002.[1]

Table 3.13-7 shows the progress of local jurisdictions meeting AB 939 diversion requirements. The table shows the number of jurisdictions with diversion rates over 50%, the number with diversion rates between 25% and 50%, and the number with diversion rates below 25%. These diversion rate estimates, from the CIWMB, are based on the State-approved formula which utilizes the number of tons reported disposed and information regarding increases in population, employment and/or taxable retail sales.

Urban Transportation Features

Elements of the transportation infrastructure, including roadways, freeways, bridges, and railroads, among others, are a large component of the urban environment and affect public services and utilities. A discussion of urban transportation features is included below.

Freeways, Highways, and Roadways

On public roadways, there is a constant need for emergency services including police, fire, and paramedic services. Safety and a constant flow of traffic are maintained by the aforementioned public services on all freeways, highways, and roadways in the SCAG region.

Trains

An additional transit mode in the region is passenger rail operations (mainly Amtrak, Metrolink, and LACMTA facilities), which occupy existing railroad tracks and right-of-way areas. In terms of routes and overall passengers served, this mode is limited. Railyard facilities within the 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 BNSF (San Bernardino County). Additional freight facilities are also located in less densely populated areas such as Barstow and Yermo (San Bernardino County).

[1] California Integrated Waste Management Board. (2003, February 21). Solid waste generation and diversion, 1989-2002. Retrieved August 15, 2003, from http://www.ciwmb.ca.gov/LGCentral/Rates/Diversion/RateTable.htm.

Table 3.13-7: Diversion Rate Summary

County	Diversion Rate Range (Percentage)	Year/Number of Jurisdictions			
		1998	1999	2000	2001
Imperial	0-24	3	1	1	2
	25-49	2	3	5	4
	50-	1	3	2	2
	Not Reporting	2	1	0	0
	Preliminary	0	6	6	8
Los Angeles	0-24	2	18	11	15
	25-49	52	47	48	58
	50-	13	20	29	16
	Not Reporting	22	4	1	0
	Preliminary	3	9	8	89
Orange	0-24	1	2	2	2
	25-49	19	19	13	18
	50-	12	11	17	12
	Not Reporting	0	0	0	0
	Preliminary	0	2	2	32
Riverside	0-24	1	1	0	0
	25-49	13	14	8	16
	50-	10	10	17	9
	Net Reporting	1	0	0	0
	Preliminary	0	2	2	25
San Bernardino	0-24	2	0	0	1
	25-49	16	19	18	20
	50-	3	6	7	4
	Not Reporting	4	0	0	0
	Preliminary	0	6	8	25
Ventura	0-24	2	3	2	3
	25-49	5	4	4	5
	50-	3	3	5	3
	Not Reporting	1	1	0	0
	Preliminary	0	5	5	11

Source: California Integrated Waste Management Board. (2003). *Countywide, regionwide, and statewide jurisdiction diversion progress report*. Retrieved February 3, 2003, from http://www.ciwmb.ca.gov/LGTools/mars/jurdrsta.asp

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, Bob Hope Airport, and Long Beach Airport in Los Angeles County; John Wayne Airport in Orange County; Ontario International Airport in San Bernardino County; and Palm Springs International Airport in Riverside County. Emerging airports include Palmdale Airport in Los Angeles County; San Bernardino International Airport and Southern California Logistics Airport in San Bernardino

County; and March Inland Port in Riverside County. Each of these airports requires police, fire, and emergency medical services for safety and security purposes and generates solid waste.

Ports

The adjacent shipping ports of Los Angeles and Long Beach represent the major shipping location in the SCAG region and also one of the most important shipping locations along the western United States. Port Hueneme in Ventura County is the third shipping port in the region. Ports require public services and utilities for the safety and well being of workers and visitors.

REGULATORY SETTING

The regulatory setting describes the federal, state, and local agencies that have jurisdiction over public services and utilities. The regulations pertinent to public services and utilities that each of these agencies enforce are also described.

Federal Agencies and Regulations

40 CFR, Part 258 Subtitle D of the RCRA establishes minimum location standards for siting municipal solid waste landfills. Because California laws and regulations governing the approval of solid waste landfills meet the requirements of Subtitle D, the USEPA has delegated the enforcement responsibility to the State of California. California laws and regulations governing these facilities are summarized below.

State Agencies and Regulations

California Code of Regulations (CCR)

Pursuant to CCR Title 23, Division 3, Article 2 (Waste Classification and Management) and Article 3 (Waste Unit Classification and Siting), Class III (municipal solid waste) landfills are sited in accordance with criteria that are similar to those found in Subtitle D of RCRA.

CCR Title 27 includes various regulations pertaining to siting, design, construction and operation of solid waste landfills.

CCR, Title 14, Chapter 3 establishes minimum standards for solid waste handling and disposal. Article 6.0 of Chapter 3 establishes minimum standards for solid waste transfer stations. Composting facility operating requirements are found in Chapter 3.1.

Other State Regulations

The Integrated Waste Management Act of 1989 (AB 939) requires that cities and counties divert 25% of solid waste from landfills by 1995 and divert 50% by the year 2000.

California Integrated Waste Management Board (CIWMB)

The CIWMB has numerous responsibilities in implementing the federal and state regulations summarized above. The CIWMB is the state agency responsible for permitting, enforcing and monitoring solid waste landfills, transfer stations, material recovery facilities (MRFs), and composting facilities within California. Permitted facilities are issued Solid Waste Facility Permits (SWFPs) by the CIWMB. The CIWMB also certifies and appoints Local Enforcement Agencies (LEAs), county or city agencies which monitor and enforce compliance with the provisions of SWFPs. The CIWMB is also responsible for monitoring implementation of AB 939 by the cities and counties.

Regional Water Quality Control Boards (RWQCB)

New or expanded landfills must submit Reports of Waste Discharge to RWQCBs prior to landfill operations. In conjunction with the CIWMB approval of SWFPs, RWQCBs issue Waste Discharge Orders which regulate the liner, leachate control and removal, and groundwater monitoring systems at Class III landfills.

Local Agencies and Regulations

South Coast Air Quality Management District (SCAQMD)

The SCAQMD regulates emissions from landfills. Landfill owners/operators must obtain permits to construct and operate landfill flares, cogeneration facilities or other facilities used to combust landfill gas. Owner/operators also are subject to the provisions of SCAQMD Rule 1150.1 (Control of Gaseous Emissions from Landfills). This rule requires the submittal of a compliance plan for implementation of a landfill gas control system, periodic ambient monitoring of surface emissions, and the installation of probes to detect the lateral migration of landfill gas.

METHODOLOGY

This section summarizes the methodology used to evaluate the expected impacts of implementation of the proposed Plan on existing public services and associated environmental effects.

Comparison with the No Project

The analysis of public services includes a comparison between the expected future conditions with the Plan and the expected future conditions if no Plan were adopted. This evaluation is not included in the determination of the significance of impacts; however, it provides a meaningful perspective on the effects of the 2004 RTP.

Determination of Significance

The public services analysis evaluates utilities and public services that are most likely to be affected by the implementation of the projects, programs, and policies identified in the Plan.

Impacts to public services were evaluated with SCAG data related to projected population, housing, and employment growth and available data on public services within the six-county region. The methodology for determining the significance of these impacts applies the significance criteria below to the expected future (2030) demand for public services and compares future demand with the Plan to the existing capacity for public services.

SIGNIFICANCE CRITERIA

A significant impact is defined as "a substantial or potentially substantial, adverse change in the environment" (Public Resources Code § 21068). The proposed Plan would have a significant impact if implementation would:

- Create a substantial need within the region for construction of additional pubic facilities, such as fire and police stations, schools or other public facilities; or
- Uncover and potentially sever underground utility lines; or
- Generate a substantial increase in the amount of solid waste that exceeds the region's available landfills' capacity to handle and dispose of the waste.

IMPACTS AND MITIGATION MEASURES

Implementation of the 2004 RTP would affect public services and utilities. Expected significant cumulative impacts would include demand for more police, fire, and emergency personnel and facilities, demand for more school facilities and teachers, an increase in households in areas subject to wildfires, and demand for additional solid waste services.

Both short-term construction related impacts and long-term or permanent impacts from new facilities potentially would result from implementation of the proposed Plan. Below are descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the 2004 RTP. Indirect, cumulative impacts from implementation of the proposed Plan in combination with increases in growth and development are also identified. It should be noted, however, that project specific impacts may vary and appropriate mitigation measures would need to be developed on a project-by-project basis.

All mitigation measures shall be included in project-level analysis as appropriate. The lead agency for each individual project in the Plan shall be responsible for ensuring adherence to the mitigation measures prior to construction. SCAG shall be provided with documentation of compliance with mitigation measures through SCAG's monitoring efforts, including SCAG's Intergovernmental Review Process.

Impact 3.13-1: Construction and implementation of the 2004 RTP would affect the level of transportation-related public services facilities, such as police and fire/emergency personnel and associated stations or other public facilities in the SCAG Region.

Police services, fire protection, and emergency medical services within the SCAG region are provided by numerous agencies within multiple jurisdictions (see Tables 3.13-1 and 3.13-2). Depending upon the timing, location, and duration of construction activities, several of the proposed projects, including grade crossings, arterials, interchanges, and auxiliary lanes, could delay emergency vehicle response times or otherwise disrupt delivery of emergency services. By closing off one or more lanes of a roadway in the SCAG region, emergency routes would be impaired. The closure of these lanes could potentially cause traffic delays and ultimately prevent access to calls for service. While these impacts would be brief in nature, they could be potentially significant. As part of project specific environmental review, the project implementation agency shall determine the degree of impact to emergency services.

Overall, project construction-related impacts to emergency vehicle response times and access could be reduced through adherence to road encroachment permits by the implementing agency. A traffic control plan should be prepared as part of the construction mitigation strategy to further reduce impacts on traffic and emergency response vehicles.

In addition, there is the potential need for increased police, fire, and medical services at the construction sites of 2004 RTP projects for security and safety purposes. However, construction sites are typically secured and have security onsite. The impact of the construction sites themselves on police, fire and emergency medical services is anticipated to be short-term in nature and less than significant.

There are several types of projects included within the 2004 RTP that, upon completion, would require different levels of police, fire, and medical services. Projects involving new roadways are anticipated to require police, fire, and emergency medical services for safety purposes.

Transit-related projects would, in many cases, involve the construction of transit stations. These transit stations, upon completion, would require police, fire, and emergency medical services. In some cases, such as the Los Angeles Metropolitan Transportation Authority (LACMTA), the governing transit authority provides security. Additionally, the increased use of transit modes of transportation, such as buses and trains, would involve an increased need for police, fire, and emergency medical services for protection and rescue services.

Rail projects, other than transit stations, are anticipated to require minimal amounts of additional fire, police, and emergency medical services for safety purposes.

The improvement of and the increased usage of non-motorized transportation methods, such as bicycle routes, are anticipated to require minimal amounts of additional police, fire, and emergency medical services. If restrooms or drinking fountains are incorporated into non-motorized transportation projects, these uses would require a minimal amount of police, fire, and emergency medical personnel for security and safety.

Throughout the SCAG region, public service and utility providers have historically accommodated increases in demand. For the most part, the 2004 RTP transportation projects would not generate a substantial, direct need for additional police, fire, and emergency medical services. Only new facilities, such as transit stations, could require potentially significant levels of police, fire, and

medical services. Fire and medical services are anticipated to be sufficient in their local jurisdictions to handle the increase in demand generated by facilities like transit stations. Any new transit police staff or facility that would be deemed necessary (by the project level CEQA documentation) will need to be funded by the appropriate transit authority, if necessary.

Based on the demand for public service and utility for similar projects and on the current capacities of existing fire, police, and medical services, the total projected demand for each of these types of projects is not anticipated to be significant.

School facilities would not be directly affected by implementation of the 2004 RTP. The cumulative effect of the resulting population growth and distribution would affect schools. This will be discussed in the cumulative impact section of this chapter.

Before mitigation the direct demand for public services and utilities would be potentially significant.

Mitigation Measures

MM 3.13-1a: The project implementation agency shall ensure that prior to construction all necessary local and state road and railroad encroachment permits are obtained. The project implementation agency shall 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 should include the following requirements:

1. 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.

2. 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.

3. Scheduling of truck trips outside of peak morning and evening commute hours.

4. Limiting of lane closures during peak hours to the extent possible.

5. Usage of haul routes minimizing truck traffic on local roadways to the extent possible.

6. Inclusion of detours for bicycles and pedestrians in all areas potentially affected by project construction.

7. Installation of traffic control devices as specified in the California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones.

8. 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 shall 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.

9. Storage of construction materials only in designated areas.

10. Coordination with local transit agencies for temporary relocation of routes or bus stops in work zones, as necessary.

MM 3.13-1b: The project implementation agency shall identify projects in the 2004 RTP that require police protection, fire service, and emergency medical service and shall coordinate with the local fire department and police department to ensure that the existing public services and utilities would be able to handle the increase in demand for their services. If the current levels of services at the project site are found to be inadequate, infrastructure improvements and/or personnel requirements for the appropriate public service shall be identified in each project's CEQA documentation.

Significance after Mitigation

The impact would be **less than significant** with mitigation.

Impact 3.13-2: Construction necessary to implement the 2004 RTP may uncover and potentially sever underground utility lines (electric and natural gas).

Any groundbreaking in the SCAG region has the potential to encounter underground utility lines and potentially break those lines. However, the project implementation agency is normally required to incorporate the locations of existing utility lines into the construction schedule prior to construction. Prior knowledge and avoidance during construction of existing utility lines would reduce this impact to less than significant.

Mitigation Measures

MM 3.13-2a: Prior to construction, the implementing agency shall identify the locations of existing utility lines. The contractor shall avoid all known utility lines during construction.

Significance after Mitigation

The impact would be **less than significant** after mitigation.

Impact 3.13-3: Construction necessary to implement the 2004 RTP would affect the demand for solid waste services in the SCAG region.

Several of the projects within the 2004 RTP have the potential to generate a significant amount of solid waste during construction, such as new transit lines, capacity enhancement facilities, and Maglev projects through grading and excavation activities. Construction debris would be recycled or transported to the nearest landfill site and disposed of appropriately. Currently, several landfills in the SCAG region function at or below their permitted capacity. Therefore, the projects proposed under the 2004 RTP are not anticipated to generate a significant amount of solid waste during construction. Nevertheless, the amount of debris generated during project construction would need to be evaluated prior to construction on a project by project basis. The mitigation measures described below would help to reduce the impact to less than significant.

Several projects within the 2004 RTP would involve the construction of roadways, rails, and facilities at various locations throughout the SCAG Region. It is assumed that these projects, upon completion, will require additional public services and utilities to handle increased demand for solid waste services. These increases would need to be evaluated on a project by project basis.

In some cases, transit-related projects would involve the construction of transit stations. These transit stations would generate incremental amounts of solid waste. In general, a 10,000 square foot transit station could be expected to generate approximately 9 tons of solid waste per year, which would be less than one apartment building with 14 one-bedroom units.[2] Additionally, the increased use of transit methods of transportation, such as buses and trains, would involve a minimal increase in the demand for solid waste collection.

Rail projects, other than transit-related rail, are not anticipated to require additional solid waste service unless they involve the construction of additional railways or facilities.

The improvement of and increased usage of non-motorized transportation methods, like bike routes, are not anticipated to require additional levels of solid waste. If restrooms are incorporated into non-motorized transportation projects, these uses would also require minimal amounts of solid waste (for trash receptacles) services.

The Maglev system would have approximately fourteen stations. Each station would be approximately twelve acres in size and would require solid waste services.[3]

The SCAG region has existing capacity for solid waste and has several landfills that are scheduled to be open through the life of the plan, as shown previously in table 3.13-6. Provided that the Eagle Mountain Landfill in Riverside County and the Mesquite Regional Landfill in Imperial

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[2] Calculations derived from conversion factors for retail land uses by the County of Sanitation Districts of Los Angeles County, 1991.

[3] Lockheed Martin-Mission Systems. (2002, December). Southern California association of governments maglev deployment program: Phase 1 – Predeployment analysis executive summaries. Gaithersburg, MD: Author.

County open as planned, there is sufficient capacity for waste disposal in the region. However, there may be insufficient waste disposal capacity where the waste is being generated. Solid waste may need to be shipped by truck or rail from urbanized areas to the remote disposal locations in Riverside and Imperial Counties.

Mitigation Measures

MM 3.13-3a: Projects identified in the 2004 RTP that require solid waste collection will coordinate with the local public works department to ensure that the existing public services and utilities would be able to handle the increase. If the current infrastructure servicing the project site is found to be inadequate, infrastructure improvements for the appropriate public service or utility shall be identified in each project's CEQA documentation.

MM 3.13-3b: Each of the proposed projects identified in the 2004 RTP shall comply with applicable regulations related to solid waste disposal.

MM 3.13-3c: The construction contractor shall work with the respective County's Recycling Coordinator to ensure that source reduction techniques and recycling measures are incorporated into project construction.

MM 3.13-3d: The amount of solid waste generated during construction will be estimated prior to construction, and appropriate disposal sites will be identified and utilized.

Significance after Mitigation

The impact would be **less than significant** after mitigation.

Cumulative Impacts

A cumulative impact consists of an impact that is created as a result of the combination of the 2004 RTP together with other projects causing related impacts.

Cumulative Impact 3.13-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to a less than significant impact to the response times of police, fire, and emergency services in the SCAG Region.

Although the population will be increasing by approximately 6 million people and the urban area will increase by approximately 900 to 1,100 square miles by 2030, the transportation projects and land use strategies in the 2004 RTP would keep the average freeway speeds at approximately the same level that they are in the base year (2000). Because of this, response times for emergency

vehicles would not be impacted by the growth of population. Cities and counties shall work toward a consensus to implement the land use measures in the 2004 RTP that would allow the region to maintain its current travel speeds.

Mitigation Measures

Less than significant. None required.

Significance after Mitigation

The impact would not be cumulatively considerable and would be **less than significant**.

Cumulative Impact 3.13-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable fire threat to development in the SCAG Region.

Mountains and forests ring the Los Angeles Basin. As development encroaches on these natural lands, homes and businesses approach areas that are susceptible to wild fires. Today, approximately 415,000 households live in areas that are classified as high, very high, or extreme threat of wild fires, based on analysis of SCAG household data and data from the CDF's, Fire and Resource Assessment Program. The Plan development forecasts more households in these areas in 2030, increasing from 415,000 to 731,000. Table 3.13-8 depicts the wild fire threat to households for the base year (2000) and the Plan. Figure 3.13-1 depicts the wild fire threat in the SCAG region.

Table 3.13-8: Wild Fire Threat to Households

Alternative	Fire Threat				
	Little or No Threat	Moderate	High	Very High	Extreme
2000 Base Year	374,574	4,640,030	141,979	218,660	54,360
Plan	630,563	6,270,538	221,938	393,982	114,983

Source: SCAG Draft 2004 RTP, California Department of Forestry and Fire Protection, Fire and Resource Assessment Program. (2003). Fire threat [Data file]. Available from http://frap.cdf.ca.gov/data/frapgisdata/select.asp

Mitigation Measures

MM 3.13-5a: SCAG shall encourage local jurisdictions to strengthen and fully enforce fire codes and regulations.

MM 3.13-5b: SCAG shall encourage the use of fire-resistant materials when constructing projects in areas with high fire threat.

MM 3.13-5c: SCAG shall encourage the use of fire-resistant vegetation and the elimination of brush and chaparral in the immediate vicinity of development in areas with high fire threat.

MM 3.13-5d: SCAG shall help reduce fire threats in the region as part of the Growth Visioning process and as policies in the update of SCAG's Regional Comprehensive Plan and Guide.

Significance after Mitigation

The impact would remain **significant** because development would occur in areas that have a high, very high, or extreme threat of fire.

Cumulative Impact 3.13-6: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the staffing level of police and fire and emergency services in the SCAG Region.

The forecast 6 million new people in the region will require police, fire, and other emergency personnel, beyond current staffing levels. SCAG's *Regional Comprehensive Plan* states that there is on average one police officer for every 263 civilians and one fire and emergency personnel for every 763 civilians.[4] To maintain these service levels, the region will need to hire 22,000 new police personnel and 7,000 fire and emergency personnel. The 2004 RTP projects that 500,000 to 700,000 acres of currently vacant land will be developed. This acreage equals approximately 900 to 1,100 square miles of area that will need to be serviced by police, fire, and other emergency personnel.

Mitigation Measures

MM 3.13-6a: Implementation agencies shall carefully evaluate the growth inducing potential of individual projects so that the full implications of the project are understood. Individual environmental documents shall quantify indirect impacts (growth that could be facilitated or induced) on public services and utilities to the extent feasible. Implementation agencies shall work with lead and responsible agencies to make any necessary adjustments to the applicable General Plan. Any such identified adjustment shall be communicated to SCAG.

[4] Southern California Association of Governments. (1994, May). Regional transportation plan and chapters of the regional comprehensive plan final environmental impact report (Vol. II, pp. 5.6, 5.8). Los Angeles: Author.

Significance after Mitigation

The demand to hire and train approximately 22,000 police personnel and 7,000 fire and emergency personnel would remain a **significant** impact.

Cumulative Impact 3.13-7: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the number of school-age children and the demand for school facilities in different parts of the SCAG Region.

Population in the SCAG region is anticipated to increase by approximately 6 million people, regardless of the 2004 RTP. The population of school-aged children (5-19) is anticipated to increase by approximately 1.1 million. This growth will require that additional schools and classrooms be built to accommodate the new students. This growth will result in a need for approximately 1,000 new schools.

The region also will need to hire new teachers. The regional average is approximately one teacher for every 22 students. To maintain the current regional average for kindergarten through twelve grade, approximately 50,000 teachers will need to be hired.

Mitigation Measures

MM 3.13-7a: Project implementation agencies shall undertake project specific review of the public utilities and services as part of project specific environmental review. For any identified impacts, project implementation agencies shall ensure that the appropriate school district has the school capacity, or is planning for the capacity, that the project will generate. Appropriate mitigation measures, such as new school construction or expansion, shall be identified. The project implementation agencies or local jurisdiction shall be responsible for ensuring adherence to the mitigation measures. SCAG shall be provided with documentation of compliance with any necessary mitigation measures.

Significance after Mitigation

The region's cumulative demand for approximately 1,000 new schools and approximately 50,000 new teachers would be a **significant** impact on public services.

Cumulative Impact 3.13-8: Implementation of the 2004 RTP in combination with potential changes to the growth distribution potentially would uncover and potentially sever underground utility lines (electric and natural gas).

Any groundbreaking in the SCAG region has the potential to encounter underground utility lines and potentially break those lines. To accommodate the projected growth, numerous new developments would be built and existing development would be recycled into new uses. These building activities would uncover and potentially sever different types of underground utility lines. However, the project implementation agency is normally required to incorporate the locations of existing utility lines into the construction schedule prior to construction. Prior knowledge and avoidance during construction of existing utility lines would reduce this impact to less than significant.

Mitigation Measures

MM 3.13-8a: Prior to construction, the implementing agency shall identify the locations of existing utility lines. The contractor shall avoid all known utility lines during construction.

Significance after Mitigation

The impact would be **less than significant**.

Cumulative Impact 3.13-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence would create a cumulatively considerable impact to the demand for solid waste services in the SCAG region.

The population of the SCAG region is forecast to increase by approximately 6 million people by 2030. The Los Angeles County Sanitation District estimates that the average person in Los Angeles County disposes of 4.5 pounds of trash per day, 2 pounds of which is recycled and the rest of which is thrown away in landfills.[5] With 6 million new people, there can be an expected 27 million pounds of new trash generated, with 15 million pounds ending up in regional landfills.

The SCAG region has existing capacity for solid waste and has several landfills that are scheduled to be open through the life of the plan, as shown previously in table 3.13-6. Provided that the Eagle Mountain Landfill in Riverside County and the Mesquite Regional Landfill in Imperial County open as planned, there is sufficient capacity for waste disposal in the region through 2030. However, there may be insufficient waste disposal capacity where the waste is being generated. Solid waste may need to be transported by truck or rail from urbanized areas to the remote disposal locations in Riverside and Imperial Counties.

Cumulative impacts of transporting the waste of 23 million people to appropriate disposal areas would create a significant impact.

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[5] Los Angeles County Sanitation Districts. (n.d.) A few facts. Retrieved October 7, 2003, from http://www.lacsd.org/MagAds/MagAdsPdf/Almanac-155.pdf.

Mitigation Measures

MM 3.13-9a: SCAG shall encourage the CIWMB to continue to enforce solid waste diversion mandates that are enacted by the Legislature.

MM 3.13-9b: SCAG shall encourage local jurisdictions to continue to adopt programs to comply with state solid waste diversion rate mandates and, where possible, shall encourage further recycling to exceed these rates.

MM 3.13-9c: Future impacts related to management of solid waste shall be minimized through cooperation, information sharing, and program development during the update of the Integrated Solid Waste Management chapter of SCAG's RCPG and through SCAG's Energy and Environment Committee. SCAG shall consult with the CIWMB during this process.

Significance after Mitigation

While disposal capacity for the solid waste in 2030 has been identified, the cumulative impacts of collecting solid waste, transporting it to an available facility, and disposing of it would remain **significant**.

Comparison with the No Project

In the No Project alternative, the population of the SCAG region grows by 6 million people, however no regional transportation investments are made above the existing programmed projects. The population distribution follows past trends, uninfluenced by additional transportation investments.

Direct Impacts

Under the No Project Alternative, the need for public facilities and solid waste services for transportation projects would be less than under the Plan Alternative because fewer projects would be built. The potential that building the projects would disrupt or sever underground utility lines also would be less in the No Project Alternative than in the Plan Alternative because there are fewer transportation projects.

The Plan impacts would be greater than the No Project impacts for Impacts 3.13-1, 3.13-2, and 3.13-3.

Indirect Impacts

Cumulatively, the congestion that results because of a lack of additional transportation improvement projects and the population distribution would result in emergency vehicle response times that would be worse in the No Project Alternative than under the Plan Alternative.

The No Project Alternative is projected to result in approximately 761,000 households in areas where there is a high, very high, or extreme threat of wild fires, compared to 731,000 households under the Plan Alternative. The No Project Alternative thus would have a greater cumulative effect than the Plan Alternative in inducing growth in areas with high threats of wild fires.

The cumulative need for additional emergency personnel, schools, and solid waste services to accommodate the population would be the same in the No Project Alternative as in the Plan Alternative.

The Plan Alternatives cumulative impacts would be less than the No Project Alternative's cumulative impacts for Cumulative Impacts 3.13-4 and 3.13-5 and approximately the same for Cumulative Impacts 3.13-6 through 3.13-9.

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4.0 ALTERNATIVES

INTRODUCTION

The purpose of this chapter is to evaluate and compare the expected environmental effects of alternatives to the proposed 2004 RTP. CEQA Guidelines require that an EIR evaluate a "reasonable range" of potentially feasible alternatives that would attain most of the basic objectives of the Plan but would avoid or substantially lessen one or more of the significant environmental effects. In addition, a "No Project" Alternative must be evaluated, and the "Environmentally Superior Alternative" must be identified. The No Project Alternative must discuss what would be expected to occur in the foreseeable future if no plan is approved. The EIR must compare the relative impacts of the alternatives with the goal of fostering informed decision-making and public participation.

In accordance with these guidelines, this PEIR evaluates a range of alternatives in addition to the proposed 2004 RTP, including:

- The No Project Alternative
- The Modified 2001 RTP Alternative
- The PILUT 1 (Infill) Alternative
- The PILUT 2 (Fifth Ring) Alternative

The major characteristics of these alternatives compared to the proposed Plan are provided in Table 4-1. A comparison of the expected environmental effects of each RTP Alternative is summarized in Table ES-1.

Table 4-1: Characteristics of the 2004 RTP Alternatives

	No Project	Plan	2001 Modified	PILUT 1 (Infill)	PILUT 2 (5th Ring)
Total Population in 2030	22,890,000	22,890,000	22,890,000	22,890,000	22,890,000
Total Households in 2030	7,476,000	7,660,000	7,660,000	7,476,000	7,660,000
Total Employment in 2030	10,168,000	10,536,000	10,536,000	10,168,000	10,536,000
Transportation Network	Baseline[1]	Plan	Plan	PILUT 1	PILUT 2
Aviation Scenario	Constrained	Preferred	Preferred	Constrained	Preferred
Land-Use-Transportation Measures	None beyond existing	In-fill and TOD[2] where feasible	None beyond existing	Aggressive infill and TOD in the existing urban centers	Aggressive infill and TOD, focusing on the outlying areas of the region

[1] Baseline refers to all in-place regionally significant projects and on going travel demand programs, in addition to those projects included in the 2002 RTIP with NEPA clearance as of December 2002.

[2] Transit-Oriented Development

Source: SCAG. (2003).

NO PROJECT ALTERNATIVE

The No Project Alternative includes projects and programs that would be reasonably foreseeable, absent adoption of the 2004 RTP. These projects include all in-place regionally significant highway and transit facilities, services and activities; all on-going travel demand management (TDM) or transportation system management (TSM) activities; and completion of all regionally significant projects that are currently under construction or undergoing right-of-way acquisition. These reasonably foreseeable projects are included in the 2002 Regional Transportation Improvement Program (RTIP) and have completed the National Environmental Policy Act (NEPA) process by December 2002.

The 2030 regional total population is expected to be the same for the No Project Alternative and the proposed 2004 Plan. However, the No Project Alternative has 184,000 fewer households and 368,000 fewer jobs, as this alternative does not receive the economic benefits associated with the transportation investments in the Plan. The growth distribution would differ from the expected distribution supported by implementation of the 2004 RTP. The No Project Alternative does not include land-use-transportation measures and includes fewer transportation projects. As a result, the Plan and the No Project Alternative provide differing mobility, and different employment and housing options, resulting in different distributions of growth in 2030.

Land Use

The No Project Alternative includes fewer transportation projects than the 2004 RTP. Thus, the No Project Alternative would be expected to directly consume or disturb fewer acres of agricultural lands and open space than the Plan Alternative. The No Project Alternative potentially would affect 1,300 acres of prime agricultural land and 1,800 acres of grazing land, compared with 6,500 acres of prime agricultural land and 7,700 acres of grazing land under the Plan Alternative. The transportation projects included in the No Project Alternative would be located within 150 feet of 300 acres of designated open space, compared with 1,100 acres of open space in the Plan Alternative. In addition, because the No Project Alternative includes only transportation projects that already have environmental clearance and includes no growth strategies, there would be less potential for conflict with general plans than under the Plan Alternative.

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan Alternative. However, the Plan Alternative includes land use measures that would help reduce the consumption and disturbance of agricultural lands, vacant lands, open space, and recreation lands. These mitigating measures are absent in the No Project Alternative. The proposed Plan Alternative also includes additional transportation improvements that facilitate access to agricultural lands, vacant lands, open space, and recreation lands that would be less accessible with the No Project Alternative. This improved accessibility under the Plan would help facilitate population and economic growth in areas of the region that are currently not developed. Furthermore, the proposed Plan Alternative includes additional households and jobs associated with the economic benefits of implementing the Plan Alternative that would consume vacant land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would consume similar acreage of vacant land.

Population, Employment and Housing

The No Project Alternative has fewer households, employment, and transportation projects than the Plan Alternative. It also does not have growth strategies that affect the growth distribution. The impact of induced population growth would be less than under the Plan Alternative. The No Project Alternative contains fewer transportation investments than the Plan Alternative. Subsequently, there are fewer places where businesses and homes would be displaced and fewer places where communities would be disrupted. The GIS analysis of existing land use data show that the freeway, transit, and freight rail projects in the No Project Alternative would occur within 150 feet of 5,300 acres of business land uses (commercial, industrial, and extraction land uses) and 2,800 acres of residential land uses (rural, low, and medium to high density housing land uses). For the Plan Alternative, 18,100 acres of business land uses and 8,100 acres of residential land uses would be affected by transportation projects.

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. However, the Plan includes land use measures that would help reduce the displacement, disruption, or division of existing communities. These mitigating measures are absent in the No Project Alternative. The proposed Plan also includes additional transportation improvements that facilitate access to currently vacant lands that would be less accessible with the No Project Alternative. This improved accessibility under the Plan would help facilitate population and economic growth in areas of the region that are currently not developed. Furthermore, the proposed Plan includes additional households and jobs associated with the economic benefits of implementing the Plan that would consume vacant land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would consume similar acreage of currently vacant natural land.

Transportation

The No Project Alternative would result in greater than or equal impacts to transportation resources, compared to the 2004 RTP. The No Project Alternative would generally be expected to result in more miles traveled and more delay. The No Project Alternative would result in 500.3 million daily Vehicle Miles Traveled (VMT), more than the 2004 RTP's 482.3 million daily VMT. Daily hours of delay in the No Project Alternative would be 5.4 million person-hours of delay for all vehicles and 0.240 million vehicle-hours of delay for heavy-duty trucks. Comparatively, the 2004 RTP would result in 3.2 million person-hours of delay for all vehicles and 0.161 million vehicle-hours of delay for heavy-duty trucks. The differences between No Project and 2004 RTP impacts to transportation are detailed in Tables 3.3-11 through 3.3-14.

The No Project Alternative would result in fewer work opportunities within 45 minutes travel time than the Plan. Specifically, 83% of work trips could be made within 45 minutes by auto and 29% by transit with the No Project Alternative, compared with 90% within 45 minutes by auto and 34% by transit with implementation of the 2004 RTP.

The No Project fatality and injury rates would be slightly higher than for the 2004 RTP (0.28 daily fatalities per million persons compared to 0.27 under the Plan and 11.0 daily injuries per million persons compared to 10.6 under the Plan).

The effects of growth and other external factors are included in the Regional Travel Demand Model that produces the results reported above. Because these external factors are modeled, the cumulative effects of regional growth are captured in the VMT, VHT, and heavy-duty truck VHT data reported for the No Project. The No Project would have greater cumulative adverse transportation impacts than the 2004 RTP.

Air Quality

As indicated in Table 3.4-5 the No Project Alternative would result in greater air quality impacts of criteria pollutants and toxic air contaminants (TACs), (with the exception of NOx) when compared to the 2004 RTP. The No Project Alternative emissions of NOx are less than 2004 RTP emissions.

Tables 4-2 and 4-3 summarize the current and No Project criteria pollutant emissions estimated by nonattainment areas and South Coast Air Basin (SCAB) counties, respectively. When compared to emissions from the current conditions, the No Project Alternative would result in fewer emissions of ROG, NOx, CO and SO_x for all nonattainment areas and SCAB counties. No project emissions of PN10 for all nonattainment areas and SCAB counties would be greater than PM_{10} emissions for current conditions.

ROG emissions are expected to decrease with the No Project Alternative and therefore, the impact of volatile organic toxics will decrease comparatively. Heavy-duty truck PM_{10} exhaust emissions estimated by SCAG's model include most of the diesel-related TAC emissions. The No Project PM_{10} emissions from heavy-duty trucks would be expected to decrease from 2000 levels for each nonattainment area.

Localized impacts were assessed for the operation phase of the No Project alternative. The risks associated with the No Project alternative are slightly greater than those under the Plan and would be significant.

The No Project Alternative will include fewer projects which improve and expand infrastructure than the 2004 RTP. Therefore, construction activity for the No Project alternative would be less than that expected with implementation of the 2004 RTP. However, the No Project Alternative would be expected to generate a substantial amount of construction activity and therefore exceed the significance thresholds established in the CEQA Guidelines. This would create a significant short-term impact. Localized impacts would also be considered significant.

Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. As previously indicated, regional emissions under the No Project Alternative are greater than under the 2004 RTP. The 2004 RTP conforms with the local air quality management plans, and thus cumulative impacts are considered less than significant. The No Project Alternative, however, may not conform to the local air quality management plans and may have a significant cumulative impact.

Table 4-2: Criteria Pollutant Emissions By Nonattainment Area
No Project Emissions in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	Current Conditions	412.61	21.28	8.07	14.37	7.54	10.47	474.34
	No Project	75.92	4.36	1.83	3.15	1.83	5.72	92.81
	Difference	-336.69	-16.92	-6.24	-11.22	-5.71	-4.75	-381.53
	% Difference	-82%	-80%	-77%	-78%	-76%	-45%	-80%
NOx	Current Conditions	737.4	30.64	12.84	31.17	15.72	13.65	841.42
	No Project	118.99	4.44	2.35	6.88	3.33	7.81	143.8
	Difference	-618.41	-26.2	-10.49	-24.29	-12.39	-5.84	-697.62
	% Difference	-84%	-86%	-82%	-78%	-79%	-43%	-83%
CO	Current Conditions	4222.49	194.27	86.74	169.97	88.96	105.86	4868.29
	No Project	571.32	26.18	16.36	27.33	16.52	42.31	700.02
	Difference	-3651.17	-168.09	-70.38	-142.64	-72.44	-63.55	-4168.27
	% Difference	-86%	-87%	-81%	-84%	-81%	-60%	-86%
PM_{10}	Current Conditions	19.08	0.76	0.32	0.69	0.39	0.41	21.65
	No Project	21.11	0.89	0.64	1.04	0.65	0.59	24.92
	Difference	2.03	0.13	0.32	0.35	0.26	0.18	3.27
	% Difference	**11%**	**17%**	**100%**	**51%**	**67%**	**44%**	**15%**
SO_x	Current Conditions	4.91	0.18	0.08	0.19	0.11	0.11	5.58
	No Project	2.56	0.11	0.07	0.12	0.08	0.08	3.02
	Difference	-2.35	-0.07	-0.01	-0.07	-0.03	-0.03	-2.56
	% Difference	-48%	-39%	-13%	-37%	-27%	-27%	-46%

Source: SCAG 2003

The No Project aviation emissions were estimated based on the Constrained Aviation Scenario. As indicated in Table 3.4-19, aviation-related emissions under this scenario would be less than under the 2004 RTP. However, emissions under the Constrained Aviation Scenario increase when compared to current conditions (2000). This would be considered a significant impact.

Noise

The No Project Alternative would result in less noise impact than the 2004 RTP. With fewer transportation projects there would be substantially less construction noise, less impact on noise-sensitive land uses and sensitive receptors, and less cumulative impacts.

Construction impacts due to grading, power tools, earth moving, groundborne vibrations, etc. for the No Project would be less than for the 2004 RTP.

Since the No Project Alternative includes fewer transportation system improvements, the impacts of noise related to operations would be less than under the 2004 RTP because of a decrease in speed, and fewer new transit noise sources.

Table 4-3: Criteria Pollutant Emissions By SCAB County (SCAB portion only)
No Project Emissions in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		Los Angeles	San Bernardino	Orange	Riverside	Sum
ROG	Current Conditions	257.99	37.94	76.18	40.51	412.62
	No Project	42.52	8.10	14.79	10.51	75.92
	Difference	-215.47	-29.84	-61.39	-30	-336.7
	% Difference	-84%	-79%	-81%	-74%	-82%
NOx	Current Conditions	453.29	78.25	112.28	93.58	737.4
	No Project	69.14	14.13	17.17	18.54	118.98
	Difference	-384.15	-64.12	-95.11	-75.04	-618.42
	% Difference	-85%	-82%	-85%	-80%	-84%
CO	Current Conditions	2651.92	378.73	751.59	440.25	4222.49
	No Project	334.16	54.70	101.75	80.72	571.33
	Difference	-2317.76	-324.03	-649.84	-359.53	-3651.16
	% Difference	-87%	-86%	-86%	-82%	-86%
PM_{10}	Current Conditions	11.79	1.83	3.23	2.23	19.08
	No Project	12.21	2.12	3.61	3.17	21.11
	Difference	0.42	0.29	0.38	0.94	2.03
	% Difference	**4%**	**16%**	**12%**	**42%**	**11%**
SO_x	Current Conditions	2.95	0.53	0.8	0.64	4.92
	No Project	1.44	0.28	0.44	0.40	2.56
	Difference	-1.51	-0.25	-0.36	-0.24	-2.36
	% Difference	-51%	-47%	-45%	-38%	-48%

Source: SCAG 2003

The number of sensitive receptors impacted by the No Project Alternative is substantially less than for the 2004 RTP. Seven sensitive receptors would be impacted by the transportation projects occurring with implementation of the No Project Alternative, compared to twenty-one with implementation of the 2004 RTP. The cumulative impacts of noise in the region would also be significantly less than in the 2004 RTP.

Aesthetics and Views

Since the No Project Alternative includes fewer transportation projects than the 2004 RTP, it would have a lesser impact in terms of obstructing views and scenic resources, creating contrasting land uses and adding visual elements to existing natural, rural, and open space areas. The No Project would not affect any State Scenic Highways or vista points.
The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. However, the Plan includes land use measures that would help reduce the consumption and disturbance of natural lands and reduce impacts to aesthetics and views. These mitigating measures are absent in the No Project Alternative. The proposed Plan also

includes additional transportation improvements that facilitate access to existing natural lands that would be less accessible with the No Project Alternative. This improved accessibility under the Plan would help facilitate population and economic growth in areas of the region that are currently not developed. Furthermore, the proposed Plan includes additional households and jobs associated with the economic benefits of implementing the Plan that would consume land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would cumulatively create similar contrasts with the overall visual character of the existing landscape setting.

Biological Resources

With fewer transportation projects than the 2004 RTP, the direct effects of transportation projects in the No Project Alternative would result in less disturbance of biological resources. As the currently programmed projects included in the No Project Alternative (which would occur regardless of adoption of the 2004 RTP) are built, the impacts to natural vegetation, sensitive species and communities, habitat connectivity, near-road human disturbances, disturbances associated with construction generated smoke, light and noise, potential displacement of riparian and wetland areas, and siltation of water bodies would remain significant. However, these impacts would be reduced compared to implementation of the 2004 RTP.

Construction impacts related to trampling of vegetation would be less than significant (with implementation of the mitigation measures described for Impact 3.7-4), and less than under the 2004 RTP. Neither the No Project Alternative nor the 2004 RTP would conflict with provisions of adopted Habitat Conservation Plans or Natural Communities Conservation Plans.

The No Project Alternative is expected to accommodate the same increase in total population as the proposed Plan. The Plan includes land use measures that support centers-based development, re-development and in-fill where feasible. These mitigating measures are absent in the No Project Alternative. Furthermore, the proposed Plan includes additional households and jobs associated with the economic benefits of the Plan that would consume vacant land. Due to these competing factors, it is expected that the No Project Alternative and the Plan Alternative would consume similar acreage of vacant land.

The No Project Alternative's cumulative impacts to biological resources due to urban development would be expected to be approximately the same as those of the 2004 RTP. Future urbanization of about the same magnitude as the Plan would be expected to affect natural vegetation, habitat, and other biological resources.

Cultural Resources

With fewer transportation projects than the 2004 RTP, the No Project Alternative would result in fewer potential impacts to cultural and paleontological resources and human remains since fewer areas would be impacted by excavation and construction activities.

The No Project Alternative's cumulative impacts due to urban development patterns would be expected to be approximately the same as those of the 2004 RTP.

Geology, Soils, and Seismicity

The land area, in acres, of the No Project Alternative adversely impacted by geologic and seismic factors is substantially less than for the Proposed Plan, all of the identified direct impacts would be mitigated to less than significant levels, similar to those impacts under the Plan. The cumulative impact, accounting for the risk to cumulative development in the region would remain significant.

With fewer transportation investments than the Plan Alternative, the No Project Alternative has less risk of damage to transportation infrastructure through surface rupture, ground shaking, liquefaction, and landsliding due to seismic events. Roadwork for the transportation projects would have less risk of increasing long-term erosion potential and slope failure. Local geology would have lower risk of potentially significant impacts to property and public safety due to subsidence and the presence of expansive soils. Given the wide-ranging distribution of the numerous potentially hazardous geological and seismic factors in Southern California, the cumulative impacts of the 2004 RTP on geological and seismic factors would be significant.

Hazardous Materials

With fewer transportation projects, most of the potential direct and cumulative impacts of the No Project Alternative with respect to hazardous materials would likely be less than under the Plan Alternative. These impacts include risk related to transport of hazardous materials, the proximity of hazardous materials use and transportation to schools, and the risk of encountering previously contaminated sites during construction. The decreased mobility associated with the No Project Alternative, especially for heavy-duty trucks, would have a greater cumulative impact on the transport of hazardous materials in counties outside of the SCAG region.

Energy

The consumption of transportation energy under the No Project would exceed that for the Plan Alternative due to an increase in VMT and VHT spent in delay. Therefore, the significant impact 3.11-2 identified for the Plan would be even greater for the No Project Alternative. The direct impact 3.11-1, relating to energy use for construction, would likely be less under the No Project Alternative than the Plan Alternative since fewer new projects would be built. The cumulative impact 3.11-3 would likely still be cumulatively considerable and significant under the No Project Alternative. For further comparison of the No Project and Plan Alternatives, refer to Section 3.11, Energy.

Water Resources

With fewer transportation projects than the 2004 RTP, the direct effects of the No Project Alternative on water resources would be less than under the 2004 RTP. However, as the currently planned projects included in the No Project Alternative (which would occur regardless of adoption of the 2004 RTP) are built, the impacts due to increased road runoff and drainage patterns would remain significant.

Transportation projects' impacts to groundwater infiltration due to increased impervious surfaces of roads and due to increased flood hazards would be less than significant (with the mitigation measures described for Impacts 3.12-2 and 3.12-3). These impacts would be less than those caused by implementation of the 2004 RTP.

Cumulatively, both the Plan and the No Project would potentially impact water quality, groundwater recharge, flood hazards, wastewater treatment capacity, and water supply. In the No Project Alternative, new development would occur to accommodate the same increase in population as projected for the proposed Plan. It is expected that the No Project would consume approximately the same acreage of vacant land as the Plan.

Because of the similar degree of urbanization and vacant land consumption, the cumulative impacts associated with urban development to water quality, groundwater recharge, and flood hazards would be similar between the Plan and the No Project Alternative.

The cumulative impacts on wastewater service capacity, due to the growth expected between the base year and 2030, would be approximately the same in the No Project Alternative and the Plan. The total population in each county is constant between the No Project Alternative and the Plan, such that Imperial, Los Angeles, Riverside and San Bernardino Counties would be at or above the existing capacity for wastewater treatment. Though it is expected that services would be added as they are needed, for the purpose of determining significance of the impact, the future wastewater flow must be compared to the existing treatment capacity, and the impact of the No Project Alternative is significant and of similar magnitude to the Plan.

The *existing* water supply and infrastructure would not be able to support the population in the No Project Alternative in 2030. The region's water agencies are continually responding to new information on population growth and would likely provide future supply, but the *existing* supply still falls short of future demand. The impact would remain significant and similar in magnitude to the Plan Alternative.

Public Services and Utilities

Under the No Project Alternative, the need for public facilities and solid waste services for transportation projects would be less than under the Plan Alternative because fewer projects would be built. The potential that building the projects would disrupt or sever underground utility lines also would be less in the No Project Alternative than in the Plan Alternative because there are fewer transportation projects.

Cumulatively, the congestion that results because of a lack of additional transportation improvement projects and the population distribution would result in emergency vehicle response times that are worse in the No Project Alternative than under the Plan Alternative.

The No Project Alternative is projected to result in approximately 761,000 households in areas where there is a high, very high, or extreme threat of wild fires, compared to 731,000 households under the Plan Alternative. The No Project Alternative thus would have a greater cumulative effect than the Plan Alternative in inducing growth in areas with high threats of wild fires.

The cumulative need for additional emergency personnel, schools, and solid waste services to accommodate the population would be the same in the No Project Alternative as in the Plan Alternative.

MODIFIED 2001 RTP ALTERNATIVE

The Modified 2001 RTP Alternative is an update of the adopted 2001 RTP, reflecting the most recent growth estimates and transportation planning decisions. The transportation investments for this Alternative are the same as those in the 2004 RTP. The alternative is a modification of the 2001 RTP in that it updates the growth projection, and modifies the transportation investments according to the newest planning decisions made in the region (e.g. the new Orange County Center Line alignment), and it extends the planning horizon from 2025 to 2030. As an Alternative to the 2004 RTP, the Modified 2001 RTP Alternative does not include any of the land use-transportation strategies utilized in the 2004 RTP. The Modified 2001 RTP Alternative includes the same number of people, households, and jobs as the Plan, though these are distributed differently due to the absence of land use-transportation strategies.

Land Use

Since the Modified 2001 RTP Alternative has the same transportation network as the Plan Alternative, its direct impact on agricultural lands and open space would be similar to the Plan Alternative. The Modified 2001 RTP Alternative does not have the same growth strategies to distribute the future population as the Plan Alternative. The Modified 2001 RTP Alternative is less aggressive on distributing future population and has less of an impact on creating inconsistencies with general plans than the Plan Alternative.

Cumulative impacts of new development to accommodate the additional population would be greater in the Modified 2001 RTP Alternative than in the Plan Alternative because the Modified 2001 RTP Alternative does not have the growth strategies that conserve vacant land.

Population, Employment and Housing

The Modified 2001 RTP Alternative has the same population, household, and employment growth to the Plan Alternative. The impact of the induced growth from the Modified 2001 RTP Alternative would be similar to the Plan Alternative. Since the Modified 2001 RTP Alternative contains the same transportation investments as the Plan Alternative, it would have approximately the same impact as the Plan Alternative in terms of displacing businesses and homes and disrupting and dividing communities.

Cumulative impacts of new development to accommodate the additional population would be greater in the Modified 2001 RTP Alternative than in the Plan Alternative because the Modified 2001 RTP Alternative does not have the growth strategies that conserve vacant land.

Transportation

The Modified 2001 RTP Alternative would result in greater impacts to transportation resources, compared to the 2004 RTP.

The Modified 2001 RTP Alternative would result in 489.5 million daily Vehicle Miles Traveled (VMT), greater than the 2004 RTP's 482.3 million daily VMT. Daily hours of delay under the Modified 2001 RTP Alternative would be 3.4 million person-hours for all vehicles and 0.171 million vehicle-hours for heavy-duty trucks. Comparatively, the 2004 RTP would produce 3.2 million person-hours of delay for all vehicles and 0.161 million vehicle-hours of delay for heavy-duty trucks.

The Modified 2001 RTP Alternative would result in approximately the same percentage of work opportunities within 45 minutes travel time as the Plan. Eighty-eight percent of work trips would be made within 45 minutes by auto and 34% by transit with the Modified 2001 RTP Alternative, compared to 90% within 45 minutes by auto and 34% by transit with implementation of the 2004 RTP.

The Modified 2001 RTP Alternative fatality rates would be approximately the same as the 2004 RTP (0.27 daily fatalities per million persons). The Modified 2001 RTP Alternative injury rates would be greater than the 2004 RTP (10.8 daily injuries per million persons compared to 10.6 in the Plan).

The effects of growth and other external factors are included in the Regional Travel Demand Model that produces the results reported above. Because these external factors are modeled, the cumulative effects of regional growth are captured in the VMT, VHT, and heavy-duty truck VHT data reported for the Modified 2001 RTP Alternative above. The Modified 2001 RTP Alternative would have greater cumulative impacts than the 2004 RTP.

Air Quality

Region-wide criteria pollutant and TAC emissions under the Modified 2001 RTP Alternative are greater than the criteria pollutant and TAC emissions under the 2004 RTP.

Tables 4-4 and 4-5 summarize the current and Modified 2001 RTP Alternative criteria emissions estimated by nonattainment area and SCAB county, respectively. When compared to the current conditions, the Modified 2001 RTP Alternative would result in fewer emissions of ROG, NOx, CO and SO_x for all nonattainment areas and SCAB counties, and fewer emissions of PM_{10} for LA County. As a result of the Modified 2001 RTP Alternative, all nonattainment areas would experience increases in PM_{10} emissions with a combined increase of 10%. This increase in PM_{10} emissions would be considered a significant impact.

ROG emissions are expected to decrease as result of the 2001 RTP Modified Alternative and therefore, the impact of volatile organic toxics will decrease comparatively. As shown in Table 4-6, PM_{10} emissions from heavy-duty trucks would be expected to decrease from 2000 levels for

Table 4-4: Criteria Pollutant Emissions By Nonattainment Area
Modified 2001 RTP Emissions in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	Current Conditions	412.61	21.28	8.07	14.37	7.54	10.47	474.34
	2001 RTP Modified	74.14	4.23	1.74	3.18	1.82	5.69	90.8
	Difference	-338.47	-17.05	-6.33	-11.19	-5.72	-4.78	-383.54
	% Difference	-82%	-80%	-78%	-78%	-76%	-46%	-81%
NOx	Current Conditions	737.4	30.64	12.84	31.17	15.72	13.65	841.42
	2001 RTP Modified	121.38	4.38	2.35	7.11	3.41	7.79	146.42
	Difference	-616.02	-26.26	-10.49	-24.06	-12.31	-5.86	-695
	% Difference	-84%	-86%	-82%	-77%	-78%	-43%	-83%
CO	Current Conditions	4222.49	194.27	86.74	169.97	88.96	105.86	4868.29
	2001 RTP Modified	547	25.17	15.3	27	16.3	41.91	672.68
	Difference	-3675.49	-169.1	-71.44	-142.97	-72.66	-63.95	-4195.61
	% Difference	-87%	-87%	-82%	-84%	-82%	-60%	-86%
PM_{10}	Current Conditions	19.08	0.76	0.32	0.69	0.39	0.41	21.65
	2001 RTP Modified	20.15	0.86	0.59	1.02	0.65	0.59	23.86
	Difference	1.07	0.1	0.27	0.33	0.26	0.18	2.21
	% Difference	**6%**	**13%**	**84%**	**48%**	**67%**	**44%**	**10%**
SO_x	Current Conditions	4.91	0.18	0.08	0.19	0.11	0.11	5.58
	2001 RTP Modified	2.48	0.11	0.07	0.12	0.08	0.08	2.94
	Difference	-2.43	-0.07	-0.01	-0.07	-0.03	-0.03	-2.64
	% Difference	-49%	-39%	-13%	-37%	-27%	-27%	-47%

Source: SCAG 2003

each nonattainment area. This comparison gives a good indication of trends in TAC emissions from the transportation network. As a result of the anticipated decline in TAC emissions, the Modified 2001 RTP Alternative would not likely create a significant impact with respect to regional TAC emissions.

Localized impacts were assessed for the operation phase of the Modified 2001 RTP Alternative. The risks associated with the Modified 2001 RTP Alternative are slightly greater than those under the Plan, and would be significant.

The Modified 2001 RTP Alternative includes projects which improve and expand infrastructure that are the same as those in the 2004 RTP. Therefore, construction activity for the 2001 RTP Modified would be similar to that expected with implementation of the 2004 RTP. The Modified 2001 RTP Alternative would be expected to generate a substantial amount of construction activity and therefore exceed the significance thresholds established in the CEQA Guidelines. This would create a significant short-term impact. Localized impacts from construction would also create a significant impact.

Table 4-5: Criteria Emissions By SCAB County (SCAB portion only)
Modified 2001 RTP Emissions in 2030 Compared to Current Conditions
(Emissions in 2000) (in Tons per Day)

		Los Angeles	San Bernardino	Orange	Riverside	Sum
ROG	Current Conditions	257.99	37.94	76.18	40.51	444.37
	2001 RTP Modified	40.94	8.16	14.59	10.45	84.06
	Difference	-217.05	-29.78	-61.59	-30.06	-360.31
	% Difference	-84%	-78%	-81%	-74%	-81%
NOx	Current Conditions	453.29	78.25	112.28	93.58	781.69
	2001 RTP Modified	69.39	15.07	17.52	19.39	133.54
	Difference	-383.9	-63.18	-94.76	-74.19	-648.15
	% Difference	-85%	-81%	-84%	-79%	-83%
CO	Current Conditions	2651.92	378.73	751.59	440.25	4522.62
	2001 RTP Modified	316.51	53.79	98.79	77.91	614.08
	Difference	-2335.41	-324.94	-652.8	-362.34	-3908.54
	% Difference	-88%	-86%	-87%	-82%	-86%
PM_{10}	Current Conditions	11.79	1.83	3.23	2.23	20.25
	2001 RTP Modified	11.48	2.11	3.52	3.04	21.6
	Difference	-0.31	0.28	0.29	0.81	1.35
	% Difference	**-3%**	**15%**	**9%**	**36%**	**7%**
SO_x	Current Conditions	2.95	0.53	0.8	0.64	5.21
	2001 RTP Modified	1.37	0.29	0.43	0.39	2.67
	Difference	-1.58	-0.24	-0.37	-0.25	-2.54
	% Difference	-54%	-45%	-46%	-39%	-49%

Source: SCAG 2003

Table 4-6: 2001 RTP Modified Alternative
PM_{10} Emissions for heavy-duty Trucks per Nonattainment Area
(Tons per Day)

	SCAB	Ventura County	Antelope Valley	Victor Valley	Coachella Valley	Imperial County
2000 Base Year	6.70	0.20	0.08	0.27	0.13	0.22
2001 RTP Modified	3.62	0.10	0.05	0.22	0.10	0.21
PM Exhaust Only						
2000 Base Year	5.88	0.16	0.06	0.23	0.11	0.21
2001 RTP Modified	2.15	0.05	0.03	0.12	0.06	0.15

Source: Southern California Association of Governments

Emissions derived from DTIM 4.02 using EMFAC2002

Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. As previously indicated, regional emissions under the Modified 2001 RTP Alternative are greater than those under the 2004 RTP. The 2004 RTP conforms with the local air quality management Plans and cumulative impacts are less than significant. However, the 2001 RTP Modified emissions may not conform to the local air quality management plans and may have a significant cumulative impact.

2001 RTP Modified aviation emissions would be based on the Preferred Aviation Plan. As indicated in Table 3.4-19 aviation-related emissions under this scenario would be significant.

Noise

The transportation improvements in the Modified 2001 RTP are the same as those in the 2004 RTP. Construction noise related to grading, power tools, earth moving, groundborne vibrations, etc. would, therefore, be the same as for the 2004 RTP.

The impact of noise on areas directly located next to transportation facilities would be similar for the Modified 2001 RTP and the 2004 RTP. The projects included in the alternatives would be the same and the potential noise impact within 150 feet of transportation facilities would also be the same, and the number of existing sensitive receptors that would be impacted by the Modified 2001 RTP would the same as the 2004 RTP.

Cumulative noise impacts for the Modified 2001 RTP would also be similar to those from implementation of the 2004 RTP. Construction, ambient, aviation and port noise would be the same between the two alternatives.

Aesthetics and Views

The direct impacts of the Modified 2001 RTP Alternative on aesthetics and views would be the same as those of the Plan Alternative because the transportation projects included in both Alternatives are the same. The Modified 2001 RTP would have the same impact on obstructing scenic resources, creating contrasting land uses, and adding visual elements to existing natural, rural, and open space areas. The Modified 2001 RTP Alternative would have the same impact on State Scenic Highways and vista points.

New development to accommodate the additional population would be greater cumulatively in the Modified 2001 RTP Alternative than in the Plan Alternative because the Modified 2001 RTP Alternative does not have the growth strategies that conserve vacant land. This development would create greater contrasts with the overall visual character of the existing landscape setting in the Modified 2001 RTP Alternative than in the Plan Alternative.

Biological Resources

The transportation investments for the Modified 2001 RTP Alternative are identical to those in the 2004 RTP. The direct impacts to natural vegetation, sensitive species and communities, habitat

connectivity, near-road human disturbances, disturbances associated with construction-generated smoke, light and noise; potential displacement of riparian and wetland areas, and siltation of water bodies would be significant and the same as the 2004 RTP.

Construction impacts related to trampling of vegetation would be less than significant (with implementation of the mitigation measures described for Impact 3.7-4), and the same as the 2004 RTP. Neither the Modified 2001 RTP Alternative nor the 2004 RTP would conflict with provisions of adopted Habitat Conservation Plans or Natural Communities Conservation Plans.

New development to accommodate the additional population would be greater cumulatively in the Modified 2001 RTP Alternative than in the Plan Alternative because the Modified 2001 RTP Alternative does not have the growth strategies that conserve vacant land. The Modified 2001 RTP Alternative would be expected to consume more land when compared to the 2004 RTP, and therefore would cumulatively affect more biological resources.

Cultural Resources

As mentioned above, the transportation investments for the Modified 2001 RTP Alternative are the same as those in the 2004 RTP. Therefore, the direct impacts to cultural resources would be significant and the same as the 2004 RTP.

The Modified 2001 RTP Alternative's cumulative impacts due to urban development patterns would be expected to be greater than those of the 2004 RTP. The Alternative would accommodate similar population, households, and employment as the 2004 RTP, but without implementation of policies that create a more compact urban form. Thus, the urban development patterns associated with the Modified 2001 RTP Alternative would be expected to cumulatively disturb more previously undisturbed areas when compared to the 2004 RTP.

Geology, Soils, and Seismicity

The impacts for the Modified 2001 RTP Alternative are comparable to the Plan Alternative, in all cases. With the same transportation investments as the Plan Alternative, the Modified 2001 RTP Alternative has the same risk of damage to transportation infrastructure through surface rupture, ground shaking, liquefaction, and landsliding due to seismic events. Roadwork for the transportation projects would have the same risk of increasing long-term erosion potential and slope failure. Local geology would pose the same risk of Potentially significant impacts to property and public safety due to subsidence and the presence of expansive soils. The cumulative impacts of the 2004 RTP on geological and seismic factors will be significant.

Hazardous Materials

In the Modified 2001 RTP Alternative, heavy duty truck VMT would grow slightly more than for the Plan Alternative. This would imply that transportation of hazardous materials would also be slightly greater, with greater risks, than for the Plan Alternative. Thus Impact 3.10-1 would be greater under the Modified 2001 RTP than under the Plan.

Impact 3.10-2, which relates to the use of hazardous materials during construction, would be the same for the Modified 2001 RTP Alternative as for the 2004 RTP, since the transportation system investments in the two Alternatives are the same.

Impact 3.10-3, which relates to the risk of release of hazardous materials within one-quarter mile of a school, would be the same for the Modified 2001 RTP Alternative as for the 2004 RTP, since the transportation system investments in the two Alternatives are the same.

Impact 3.10-4, which relates to the risk of disturbing contaminated sites during construction, would be the same for the Modified 2001 RTP Alternative as for the 2004 RTP, since the transportation system investments in the two Alternatives are the same.

Cumulative Impact 3.10-5, which relates to hazardous materials transportation impacts on neighboring counties, would be greater for the Modified 2001 RTP Alternative than for the 2004 RTP, as mobility would decrease relative to the Plan, leading to greater pressure on the transportation systems of other counties.

Cumulative Impact 3.10-6, which relates to the risk of disturbing contaminated sites during construction related to the region's growth as a whole, would be expected to be reduced under the Modified 2001 RTP Alternative since growth policies would not be included that would emphasize infill and redevelopment versus use of new land.

Energy

Impact 3.11-1, which relates to the use of energy resources in construction and expansion of the regional transportation system, would be the same for the Modified 2001 RTP Alternative as for the 2004 RTP, since the transportation system investments in the two Alternatives are the same.

Impact 3.11-2 relates to the use of energy resources in the operation of the regional transportation system and is significant after mitigation. Transportation energy usage is projected to be slightly higher under the Modified 2001 RTP Alternative compared with the 2004 RTP Alternative.[1] The magnitude of this impact under the Modified 2001 RTP Alternative would still be significant even after mitigation.

Cumulative Impact 3.11-3 is a significant impact relating to the overall growth in the use of energy resources for the SCAG region. As mentioned above, transportation energy consumption under the Modified 2001 RTP Alternative would be slightly higher compared to the Plan Alternative. In addition, the analysis of residential energy consumption indicates that the Modified 2001 RTP Alternative would consume slightly more energy due to a distribution of household types that includes more energy-intensive single-family homes versus the Plan Alternative. Overall, the increase in regional energy consumption under the Modified 2001 RTP Alternative would be cumulatively considerable and therefore significant.

[1] The transportation fuel consumption in Imperial County for the Modified 2001 RTP Alternative was assumed to be the same as for the 2004 RTP.

Water Resources

The transportation investments for the Modified 2001 RTP Alternative are the same as those in the 2004 RTP. The direct impacts due to increased road runoff and drainage patterns would remain significant and the same as the Plan Alternative.

Transportation project impacts due to decreased groundwater infiltration, and increased flooding hazards would be less than significant with implementation of the mitigation measures described for Impacts 3.12-1 through 3.12-3 and the same as the Plan.

The Modified 2001 RTP Alternative's cumulative impacts to water quality, groundwater recharge and flood hazards due to urban development patterns would be expected to be greater than those of the 2004 RTP. The alternative would accommodate similar population, households, and employment to the 2004 RTP, but as noted above, the growth distribution associated with the Modified 2001 RTP Alternative would be expected to consume more land than the Plan.

The cumulative impacts on wastewater service capacity, due to the growth expected between the base year and 2030, would be approximately the same in the Modified 2001 RTP Alternative and the Plan. The total population in each county is constant between the Modified 2001 RTP Alternative and the Plan, such that Imperial, Los Angeles, Riverside and San Bernardino counties would be at or above the existing capacity for wastewater treatment. Though it is expected that services would be added as they are needed, for the purpose of determining significance of the impact, the future wastewater flow must be compared to the existing treatment capacity, and the impact of the Modified 2001 RTP Alternative is significant and of similar magnitude to the Plan impacts.

The *existing* water supply and infrastructure would not be able to support the population in the Modified 2001 RTP Alternative in 2030. Implementation of the mitigation measures would provide future supply, but the *existing* supply still falls short of future demand. The impact would remain significant and similar in magnitude to the Plan Alternative.

Public Services and Utilities

Under the Modified 2001 RTP, the need for police, fire, schools, and solid waste services would be the same as the Plan Alternative. The potential to sever underground utility lines would also be the same.

The population distribution of the Modified 2001 RTP Alternative would not be as compact as under the Plan Alternative. The associated traffic congestion would result in emergency vehicle response times that are worse than under the Plan Alternative.

The Modified 2001 RTP Alternative is projected to result in approximately 781,000 households in areas where there is a high, very high, or extreme threat of wild fires, compared with 731,000 households under the Plan Alternative. The Modified 2001 RTP Alternative would have a greater cumulative impact than the Plan Alternative in inducing growth in areas with high threats of wild fires.

The cumulative impact of new development to accommodate the additional population would generate approximately the same need for additional emergency personnel, schools, and solid waste services and would result in approximately the same chance of severing underground utility lines for the Modified 2001 RTP Alternative as for the Plan Alternative.

PILUT 1 (INFILL) ALTERNATIVE

The development of the 2004 RTP proceeded via an integrated process called Planning for Integrated Land Use and Transportation, or PILUT. The regional growth visioning effort known as Southern California Compass was an element of this process and contributed two contrasting alternatives to the 2004 RTP that were analyzed in this EIR, known as PILUT 1 and PILUT 2.

The PILUT 1 (Infill) Alternative includes transportation and urban-form strategies that encourage a substantial portion of future growth to concentrate in existing urban centers through infill and redevelopment. This Alternative was designed by Fregonese Calthorpe Associates, SCAG's consultant on the growth visioning effort, to reduce consumption of open space and habitat compared to the 2004 RTP. The PILUT 1 Alternative analyzed in this PEIR represents one potential vision of what could occur if the investments, urban form strategies, and goals of this Alternative were fully realized.

The PILUT 1 Alternative does not include the privately funded transportation projects: Maglev investments and the freight rail and roadway capacity enhancements. Additionally, this Alternative includes a "constrained" aviation scenario in which the region serves only 141 MAP due to a lesser reliance on airports in the Inland Empire and Northern Los Angeles County compared to the 2004 RTP. The PILUT 1 Alternative does not include the economic benefits of the privately funded elements of the Plan, resulting in 184,000 fewer households and 368,000 jobs relative to the Plan.

Land Use

The PILUT 1 Alternative's transportation network would have a lesser potential effect on prime farmlands and grazing lands because it does not have the Maglev system (as well as fourteen Maglev stations), goods movement capacity enhancements, or freight rail lines. Without these projects, the PILUT 1 Alternative's freeway, transit and rail projects would potentially affect 5,900 acres of prime agricultural land and 5,700 acres of grazing land, compared with 6,500 acres of prime agricultural land and 7,700 acres of grazing land in the Plan Alternative.

The PILUT 1 transportation projects would be so located as to potentially affect 900 acres of designated open space. This is less than the Plan Alternative, which would affect 1,100 acres of open space.

Current land use practices would have to be changed to accommodate the PILUT 1 Alternative because this alternative focuses considerable growth onto the existing urban area. To achieve the densities of the PILUT 1 Alternative, there would be a greater chance of conflicting with general plans in the PILUT 1 Alternative than in the Plan Alternative.

New development to accommodate the additional population would consume fewer acres than in the proposed Plan. The distribution pattern for the PILUT 1 Alternative is the most focused on infill of the different Alternatives. If fully realized as envisioned, the PILUT 1 Alternative would be expected to consume only half as many acres of vacant, natural land as the Plan. Because of this, the population distribution of the PILUT 1 Alternative would have a lesser cumulative effect than the Plan Alternative on agriculture and open space and would cumulatively contribute less to urban development on currently vacant land.

Population, Employment and Housing

The PILUT 1 Alternative would have smaller household and employment growth but the same population growth as the Plan Alternative. The impact of the induced population growth would be less than for the Plan Alternative because the PILUT 1 Alternative has fewer households and jobs and because the PILUT 1 Alternative is the most focused on infill of the different Alternatives.

The GIS analysis of existing land use data shows that the freeway, transit, and freight rail projects in the PILUT 1 Alternative would potentially affect 15,500 acres of business land uses (commercial, industrial, and extraction land uses) and 7,300 acres of residential land uses (rural, low density, and medium to high density land uses). This is less than for the Plan Alternative, with 18,100 acres of business land uses and 8,100 acres of residential land uses potentially affected by transportation projects. The PILUT 1 Alternative would have less effect on displacing businesses and homes than the Plan Alternative because it disrupts fewer businesses and homes.

New development to accommodate the additional population would consume fewer acres than the proposed Plan. The distribution pattern for the PILUT 1 Alternative is the most focused on infill of the different Alternatives. Because of this, the population distribution of the PILUT 1 Alternative would have a lesser cumulative effect than the Plan Alternative on agriculture and open space and would contribute cumulatively less to urban development on currently vacant land.

Transportation

The PILUT 1 Alternative would result in less transportation impacts than the 2004 RTP. The PILUT 1 Alternative would result in 451.6 million daily Vehicle Miles Traveled (VMT), less than the 2004 RTP's 482.3 million daily VMT, and the VMT in the base year, making it a beneficial impact. Daily hours of delay under the PILUT 1 Alternative would be 2.9 million person-hours for all vehicles and 0.160 million vehicle-hours for heavy-duty trucks. Comparatively, the 2004 RTP would produce 3.2 million person-hours of delay for all vehicles and 0.161 million vehicle-hours of delay for heavy-duty trucks.

The PILUT 1 Alternative would result in a greater percentage of work opportunities within 45 minutes travel time than the 2004 RTP. Ninety-two percent of work trips could be made within 45 minutes by auto and 40% by transit with the PILUT 1 Alternative, compared to 90% within 45 minutes by auto and 34% by transit with implementation of the 2004 RTP.

The PILUT 1 Alternative fatality rates would be lower than the 2004 RTP (0.25 daily fatalities per million persons in PILUT 1 compared to 0.27 for the 2004 RTP). The PILUT 1 injury rates would be lower than the 2004 RTP (9.8 daily injuries per million persons compared to 10.6 in the Plan).

The effects of growth and other external factors are included in the Regional Travel Demand Model that produces the results reported above. Because these external factors are modeled, the cumulative effects of regional growth are captured in the VMT, VHT, and heavy-duty truck VHT data reported for the PILUT 1 Alternative above. The PILUT 1 Alternative would have less cumulative impacts than the 2004 RTP.

Air Quality

Region-wide criteria pollutant emissions under the PILUT 1 Alternative are less than the criteria pollutant emissions under the 2004 RTP.

Tables 4-7 and 4-8 summarize the current and PILUT 1 criteria emissions estimated by nonattainment areas and SCAB counties, respectively. When compared to the current condition emissions, the PILUT I Alternative would result in fewer emissions of ROG, NOx, CO and SO_x for all nonattainment areas and SCAB counties and fewer emissions of PM_{10} for LA County. Emissions of PM_{10} for all nonattainment areas combined would increase by 2% as a result of the PILUT 1 Alternative. This increase in PM_{10} emissions would be considered a significant impact. Antelope Valley, Coachella Valley and Imperial County would experience the greatest increases in PM_{10} emissions.

ROG emissions are expected to decrease as result of the PILUT 1 Alternative and therefore, the impact of volatile organic toxics will decrease comparatively. As shown in Table 4-9, PM_{10} emissions from heavy-duty trucks would be expected to decrease from 2000 levels for each county. This comparison gives a good indication of trends in TAC emissions from the transportation network. As a result of the anticipated decline in TAC emissions, the PILUT 1 Alternative would have a less than significant impact with respect to regional TAC emissions.

Localized impacts were assessed for the operation phase of the PILUT I Alternative. The risks associated with the PILUT I alternative are slightly less than those under the Plan, but would be significant.

PILUT I does not include Maglev investments, freight rail improvements nor the proposed goods movement enhancement projects. Therefore, construction activity for PILUT 1 would be considerably less than that under the 2004 RTP. However PILUT I contains many major construction projects such as new highways projects and arterials. The PILUT 1 Alternative would be expected to generate a significant amount of construction activity and therefore exceed the significance thresholds established in the CEQA Guidelines. This would create a significant short-term impact. Localized impacts from construction would also be considered significant. Other construction impacts include potential construction-related traffic impacts due to congestion from lane closures. These impacts should be addressed at the project level analysis.

Table 4-7: Criteria Pollutant Emissions By Nonattainment Area
PILUT 1 Emissions in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	Current Conditions	412.61	21.28	8.07	14.37	7.54	10.47	474.34
	PILUT 1	67.77	4.23	2.28	2.78	2.07	5.69	84.82
	Difference	-344.84	-17.05	-5.79	-11.59	-5.47	-4.78	-389.52
	% Difference	-84%	-80%	-72%	-81%	-73%	-46%	-82%
NOx	Current Conditions	737.4	30.64	12.84	31.17	15.72	13.65	841.42
	PILUT 1	114.3	4.46	3.73	5.68	3.72	7.79	139.68
	Difference	-623.1	-26.18	-9.11	-25.49	-12	-5.86	-701.74
	% Difference	-84%	-85%	-71%	-82%	-76%	-43%	-83%
CO	Current Conditions	4222.49	194.27	86.74	169.97	88.96	105.86	4868.29
	PILUT 1	493.62	25.2	18.95	22.66	18.68	41.91	621.02
	Difference	-3728.87	-169.07	-67.79	-147.31	-70.28	-63.95	-4247.27
	% Difference	-88%	-87%	-78%	-87%	-79%	-60%	-87%
PM_{10}	Current Conditions	19.08	0.76	0.32	0.69	0.39	0.41	21.65
	PILUT 1	18.28	0.86	0.76	0.88	0.75	0.59	22.12
	Difference	-0.8	0.1	0.44	0.19	0.36	0.18	0.47
	% Difference	-4%	**13%**	**138%**	**28%**	**92%**	**44%**	**2%**
SO_x	Current Conditions	4.91	0.18	0.08	0.19	0.11	0.11	5.58
	PILUT 1	2.26	0.11	0.09	0.1	0.09	0.08	2.73
	Difference	-2.65	-0.07	0.01	-0.09	-0.02	-0.03	-2.85
	% Difference	-54%	-39%	13%	-47%	-18%	-27%	-51%

Source: SCAG 2003

Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. As previously indicated, regional emissions under PILUT 1 are less than the 2004 RTP. The 2004 RTP conforms with the local air quality management Plans and cumulative impacts are less than significant. Therefore, PILUT 1 emissions would also conform to the local air quality management plans and have a less than significant cumulative impact.

PILUT 1 aviation emissions would be based on the Constrained Aviation Scenario. As indicated in Table 3.4-19 aviation-related emissions under this scenario would be less than the 2004 RTP Preferred Plan. However, emissions under the Constrained Aviation Plan increase when compared to current conditions and would be considered a significant impact.

Noise

Without Maglev, and freight rail projects and other goods movement enhancement projects, the PILUT 1 Alternative would have less of a noise impact than the 2004 RTP.

Table 4-8: Criteria Pollutant Emissions By SCAB County (SCAB portion only)
Pilut 1 in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		Los Angeles	San Bernardino	Orange	Riverside	Sum
ROG	Current Conditions	257.99	37.94	76.18	40.51	412.62
	PILUT 1	36.58	8.2	13.55	9.44	67.77
	Difference	-221.41	-29.74	-62.63	-31.07	-344.85
	% Difference	-86%	-78%	-82%	-77%	-84%
NOx	Current Conditions	453.29	78.25	112.28	93.58	737.4
	PILUT 1	66.05	14.08	16.64	17.53	114.3
	Difference	-387.24	-64.17	-95.64	-76.05	-623.1
	% Difference	-85%	-82%	-85%	-81%	-84%
CO	Current Conditions	2651.92	378.73	751.59	440.25	4222.49
	PILUT 1	277.78	54.47	91.14	70.23	493.62
	Difference	-2374.14	-324.26	-660.45	-370.02	-3728.87
	% Difference	-90%	-86%	-88%	-84%	-88%
PM_{10}	Current Conditions	11.79	1.83	3.23	2.23	19.08
	PILUT 1	10.15	2.14	3.25	2.74	18.28
	Difference	-1.64	0.31	0.02	0.51	-0.80
	% Difference	-14%	**17%**	**1%**	**23%**	-4%
SO_x	Current Conditions	2.95	0.53	0.8	0.64	4.92
	PILUT 1	1.23	0.29	0.40	0.35	2.27
	Difference	-1.72	-0.24	-0.4	-0.29	-2.65
	% Difference	-58%	-45%	-50%	-45%	-54%

Source: SCAG 2003

Table 4-9: PILUT 1 Alternative PM_{10} Emissions for heavy-duty Trucks per Nonattainment Area
(Tons per Day)

	SCAB	Ventura County	Antelope Valley	Victor Valley	Coachella Valley	Imperial County
2000 Base Year	6.70	0.20	0.08	0.27	0.13	0.22
PILUT 1	3.48	0.10	0.14	0.23	0.11	0.21
PM Exhaust Only						
2000 Base Year	5.88	0.16	0.06	0.23	0.11	0.21
PILUT 1	2.04	0.06	0.06	0.14	0.06	0.15

Source: Southern California Association of Governments

Emissions derived from DTIM 4.02 using EMFAC2002

Construction noise related to grading, power tools, earth moving, groundborne vibrations, etc. would be less under the 2004 RTP since several major projects would not be built.

For the same reason, the impact of noise on areas directly adjacent to transportation facilities would be less with the PILUT 1 Alternative than the 2004 RTP.

Even though there are differences in the transportation projects, the number of sensitive receptors that would be impacted by noise under the PILUT 1 Alternative is the same as the 2004 RTP.

Cumulative and ambient noise would be significant, but less compared to the 2004 RTP. Less overall construction noise, a more constrained aviation system and fewer transit operations would not generate as much ambient and cumulative noise as the 2004 RTP.

Aesthetics and Views

The PILUT 1 Alternative would have less effect on aesthetics and views than the Plan Alternative. The PILUT 1 Alternative does not include Maglev, goods movement capacity enhancements, or freight rail improvements, which might be elevated and may obstruct views. Without these projects, PILUT 1 would have less effect on obstructing scenic resources, creating contrasting land uses and adding visual elements to existing natural, rural, and open space areas. PILUT 1 would have the same impact as the Plan Alternative on State Scenic Highways and vista points.

Since the PILUT 1 Alternative would have more emphasis on infill development than the Plan Alternative, it would create fewer contrasts with the overall visual character of the existing landscape setting and thus have fewer cumulative impacts.

Biological Resources

Without Maglev, freight rail projects and other goods movement capacity enhancement projects (but otherwise the same the same transportation projects as the 2004 RTP), the PILUT 1 Alternative would disturb fewer biological resources. The impacts to natural vegetation, sensitive species and communities, habitat connectivity, near-road human disturbances, disturbances associated with construction generated smoke, light and noise; potential displacement of riparian and wetland areas, and siltation of water bodies would remain significant. However, these impacts would be reduced compared to implementation of the 2004 RTP.

With fewer major projects built in this alternative, construction impacts related to trampling of vegetation would be less than significant and less than for the 2004 RTP (with implementation of the mitigation measures described for Impact 3.7-4). Neither the PILUT 1 Alternative nor the 2004 RTP would conflict with provisions of adopted Habitat Conservation Plans or Natural Communities Conservation Plans.

The PILUT 1 Alternative's cumulative impacts to biological resources due to urban development patterns would be expected to be less than those of the 2004 RTP. The PILUT 1 Alternative would accommodate similar growth in population, but this alternative includes transportation and

land use strategies that encourage a substantial portion of future growth to concentrate in existing urban centers through infill and redevelopment, more so than the 2004 RTP. The PILUT 1 Alternative would include fewer jobs and households relative to the Plan. These measures would discourage population and employment centers from growing in the outlying areas of the region where consumption of open land (and potentially biological resources) would occur. The PILUT 1 Alternative would consume less land than the 2004 RTP and have less cumulative impact on biological resources than the Plan.

Cultural Resources

Without Maglev, freight rail projects and other goods movement capacity enhancement projects that are included in the 2004 RTP, the PILUT 1 Alternative's direct impacts to cultural resources would be less than those of the 2004 RTP due to the disturbance of fewer previously undisturbed areas.

The PILUT 1 Alternative's cumulative impacts due to urban development patterns would be expected to be less than those of the 2004 RTP. This alternative would accommodate similar population, households, and employment to the 2004 RTP, but this alternative includes transportation and land use strategies that encourage a substantial portion of future growth to concentrate in existing urban centers through infill and redevelopment, more so than the 2004 RTP. These measures would discourage population and employment centers from growing in the outlying areas of the region where consumption of open land would occur. The PILUT 1 Alternative would be expected to consume less land and have a lower potential for disturbing previously undiscovered cultural resources than the 2004 RTP and thus have less cumulative impact on cultural resources.

Geology, Soils, and Seismicity

The PILUT 1 Alternative was designed to reduce consumption of open space and habitat. As a consequence of these "smart growth" measures, and because the Alternative concentrates development in areas of existing development, which generally avoid the various geologic and seismic impacts, this Alternative has a considerably lower acreage of impacted land. All pre-mitigation impacts, while significant, are less so than the Plan Alternative. All post-mitigation impacts, other than the cumulative impact, become less than significant in this case as well.

Hazardous Materials

In the PILUT 1 Alternative, heavy duty truck VMT are projected to grow slightly less than for the Plan Alternative. Transportation of hazardous materials would also be slightly less, with fewer risks, than for the Plan Alternative. Thus Impact 3.10-1, which is significant, would likely be slightly less under PILUT 1 than under the Plan, though it would still be significant.

Impact 3.10-2, which relates to the use of hazardous materials during construction, would probably be less for the PILUT 1 Alternative than for the 2004 RTP, since fewer transportation system investments would be made under the PILUT 1 Alternative and therefore less system construction and expansion would proceed.

Impact 3.10-3 relates to the risk of release of hazardous materials within one-quarter mile of a school. As a result of differences in the transportation system investments, new transportation projects in the PILUT 1 Alternative would be within a quarter-mile radius of 696 schools, which is fifty fewer than the Plan Alternative. This impact would thus be smaller, but still would be significant even with mitigation.

Impact 3.10-4, which relates to the risk of disturbing contaminated sites during construction, would be less for the PILUT 1 Alternative than for the 2004 RTP, since fewer transportation system investments would be made under the PILUT 1 Alternative. This impact would still be less-than-significant with mitigation.

Cumulative Impact 3.10-5, which relates to hazardous materials transportation impacts on neighboring counties, would be less for the PILUT 1 Alternative than for the 2004 RTP, since mobility improves under the PILUT 1 Alternative, including that of heavy-duty trucks, putting less traffic pressure on neighboring counties. This impact would still be significant.

Cumulative Impact 3.10-6, which relates to the risk of disturbing contaminated sites during construction related to the region's growth as a whole, would be expected to be increased under the PILUT 1 Alternative since the Alternative would encourage even more infill and redevelopment than the 2004 RTP Alternative. However, this impact would still be less than significant with mitigation.

Energy

Impact 3.11-1, which relates to the use of energy resources in construction and expansion of the regional transportation system, would be less under the PILUT 1 Alternative than for the 2004 RTP, since fewer transportation system investments would be made and therefore less construction will proceed.

Impact 3.11-2 relates to the use of energy resources in the operation of the regional transportation system. Transportation energy usage would be substantially lower under the PILUT 1 Alternative compared with the 2004 RTP Alternative. However, the magnitude of this impact under the PILUT 1 Alternative would still be significant even after mitigation.

Cumulative Impact 3.11-3 is a significant impact relating to the overall growth in the use of energy resources for the SCAG region. As mentioned above, transportation energy consumption under the PILUT 1 Alternative would be lower compared to the Plan Alternative.[2] Further, the analysis of residential energy consumption indicates that the PILUT 1 Alternative would consume slightly less energy due to a distribution that includes more coastal and less inland development and slightly more reliance on energy-efficient multi-family dwellings in inland areas versus the Plan Alternative. Overall, the magnitude of this impact under the PILUT 1 Alternative would be less

[2] The transportation fuel consumption in Imperial County for the PILUT 1 Alternative was assumed to be the same as for the 2004 RTP.

than for the 2004 RTP Alternative, but it would still be cumulatively considerable and therefore significant.

Water Resources

Without Maglev, the freight rail projects or other goods movement capacity enhancement projects, the PILUT 1 Alternative would have fewer direct impacts to water resources. The direct impacts due to increased road runoff and drainage patterns would be significant but less than for the Plan. Direct impacts to groundwater infiltration due to increased impervious surfaces of roads, and due to increased flooding hazards would be less than significant with implementation of the mitigation measures described for Impacts 3.12-1 through 3.12-3.

The PILUT 1 Alternative's cumulative water quality, groundwater recharge, and flood hazard impacts due to urban development patterns would be expected to be less than those of the 2004 RTP. The PILUT 1 Alternative would accommodate similar growth in population, but this Alternative includes transportation and land use strategies that encourage a substantial portion of future growth to concentrate in existing urban centers through infill and redevelopment, more so than the 2004 RTP. The PILUT 1 Alternative also includes fewer jobs and households relative to the Plan, and consumes less land than the 2004 RTP.

The cumulative impacts on wastewater service capacity, due to the growth expected between the base year and 2030, would regionally be approximately the same in the PILUT 1 Alternative and the Plan. The total population in each county differs between the PILUT 1 Alternative and the Plan. Four counties are at or above their treatment capacity in the PILUT 1 Alternative, as for the Plan, but the impacts are distributed to different counties. In the PILUT 1 Alternative, Los Angeles County's wastewater treatment capacity would not be exceeded (as it is under the Plan scenario), and the impacts to Riverside and San Bernardino counties would be greater than under the Plan. Ventura would exceed its wastewater treatment capacity in the PILUT 1 scenario (though not in the Plan), and Imperial County would exceed its capacity as it would in the Plan. Though it is expected that services would be added as they are needed, for the purpose of determining significance of the impact, the future wastewater flow must be compared to the existing treatment capacity, and the impact of the PILUT 1 Alternative is significant and of similar regional magnitude as the Plan, though the impacts are distributed differently.

The PILUT 1 Alternative would distribute less growth within the MWD service area, and more to other water supply agencies than the Plan (see Table 3.12-5). These water agencies are smaller, and most occur in drier inland climates. Relative to the Plan Alternative, these factors would provide additional challenges in supplying municipal water to meet the demand associated with the PILUT 1 Alternative. The *existing* water supply and infrastructure would not be able to support the population in the PILUT 1 Alternative in 2030. Implementation of the mitigation measures would provide future supply, but the *existing* supply still falls short of future demand. The impact would remain significant and greater in magnitude than for the Plan Alternative.

Public Services and Utilities

Under the PILUT 1 Alternative, the need for police and fire/emergency services and solid waste services would be less than for the Plan Alternative because the PILUT 1 Alternative has fewer projects than the Plan Alternative. The potential to sever underground utility lines also would be less than the Plan Alternative.

The cumulative impact of new development to accommodate the additional population would generate approximately the same need for additional emergency personnel, schools, and solid waste services and would result in a similar chance of severing underground utility lines for the PILUT 1 Alternative as for the Plan Alternative. In addition, the emergency vehicle response times that result from the growth distribution of the PILUT 1 Alternative would be similar to those for the Plan Alternative.

The PILUT 1 Alternative is projected to result in approximately 683,000 households in areas where there is a high, very high, or extreme threat of wild fires compared to 731,000 households for the Plan Alternative. The PILUT 1 Alternative would have a lesser cumulative effect than the Plan Alternative because it would facilitate less growth in areas with high threats of wild fires.

PILUT 2 (FIFTH RING) ALTERNATIVE

As mentioned earlier, PILUT 2 (Fifth Ring) is the second of two contrasting alternatives developed through SCAG's growth visioning process by Fregonese Calthorpe Associates. The PILUT 2 Alternative includes transportation and urban-form strategies that encourage a more decentralized urban form, with many compact, infill-intense urban centers throughout the region, resulting in an improvement in the jobs/housing balance in the outlying areas. The PILUT 2 Alternative analyzed in this EIR represents a compact, centers-based vision of what could occur if the investments, urban form strategies, and goals of this Alternative were fully realized.

Specifically, PILUT 2 focuses on improving and expanding infrastructure to utilize undeveloped land on the outer edges of the urbanized area. Transportation investments include additional capacity on State Route 14, along Interstate 5 in Northern Los Angeles County, a "5th ring" expressway connecting Victorville to the Palm Springs area, and expressway improvements on US-395 from State Route 18 to the Kern County Line. Additional arterials in these areas would support these highway improvements. As stated above, this EIR evaluates a relatively compact, centers-based urban form based on full implementation of the vision for PILUT 2. However, expansion of these transportation facilities, without full implementation of the goals and strategies intended to support compact centers, could result in a decentralized regional urban form that facilitates more consumption of vacant land and open space than the proposed 2004 RTP.

Land Use

The PILUT 2 Alternative would directly affect more prime farmland and grazing land than the Plan Alternative. The GIS analysis of the major freeway, transit, and freight rail projects in the PILUT 2 Alternative indicates that 6,500 acres of prime agricultural land and 9,200 acres of grazing land

would be affected by PILUT 2 Alternative transportation projects, compared to 6,500 acres and 7,700 acres, respectively, for the Plan.

The freeway, transit and freight rail projects included in the PILUT 2 Alternative would have the potential to affect 1,100 acres of designated open space. This impact would be the same as the Plan Alternative, which also potentially would affect 1,100 acres of open space.

Current land use practices would have to be changed to accommodate the PILUT 2 Alternative because this alternative focuses a great deal of growth onto the existing urban area in the desert portions of the region. To achieve the densities of the PILUT 2 Alternative, there would be a greater chance of conflicting with general plans in the PILUT 2 Alternative than in the Plan Alternative.

If fully realized as envisioned, the urban footprint of PILUT 2 would be denser than that of the Plan Alternative. The PILUT 2 Alternative would disperse the growth into the outlying desert portions of the region, but would focus the growth in existing urban boundaries of the desert cities. This growth pattern would intensify existing land uses and limit vacant land development. The PILUT 2 Alternative would cumulatively have less of an impact on land use than the Plan Alternative.

Population, Employment and Housing

The population growth in the PILUT 2 Alternative would be the same as for the Plan Alternative, but the greater density of urban development in PILUT 2 would result in less impact of induced growth on currently vacant land.

The GIS analysis of existing land use data show that the freeway, transit, and freight rail projects in the PILUT 2 Alternative would have the potential to affect 18,100 acres of business land uses and 8,200 acres of residential land uses. These data indicate slightly more impacts on displacing, disrupting, or dividing communities than the Plan Alternative, which would have the potential of affecting 18,100 acres of business land uses and 8,100 acres of residential land uses.

If fully realized as envisioned, the urban footprint of PILUT 2 would be denser than that of the Plan Alternative. The PILUT 2 Alternative would disperse the growth into the outlying desert portions of the region, but would focus the growth in existing urban boundaries of the desert cities. This growth pattern would intensify existing land uses and limit vacant land development. The PILUT 2 Alternative would cumulatively have less of an impact on land use than the Plan Alternative.

Transportation

The PILUT 2 Alternative would result in 468.2 million daily Vehicle Miles Traveled (VMT), less than the 2004 RTP's 482.3 million daily VMT. Daily hours of delay under the PILUT 2 Alternative would be 3.7 million person-hours for all vehicles and 0.147 million vehicle-hours for heavy-duty trucks. Comparatively, the 2004 RTP would produce 3.2 million person-hours of delay for all vehicles and 0.161 million vehicle-hours of delay for heavy-duty trucks.

The PILUT 2 Alternative would result in 88% of work trips within 45 minutes by auto and 37% by transit with the PILUT 2 Alternative, compared to 90% within 45 minutes by auto and 34% by transit with implementation of the 2004 RTP.

The PILUT 2 Alternative fatality rates would be less than for the 2004 RTP (0.26 daily fatalities per million persons in PILUT 2 compared to 0.27 for the 2004 RTP). The PILUT 2 Alternative injury rates would be less than for the 2004 RTP (10.3 daily injuries per million persons compared to 10.6 in the Plan).

The effects of growth and other external factors are included in the Regional Travel Demand Model that produces the results reported above. Because these external factors are modeled, the cumulative effects of regional growth are captured in the VMT, VHT, and heavy-duty truck VHT data reported for PILUT 2above. The PILUT 2 Alternative would have greater cumulative impacts than the 2004 RTP as the new growth in the inland areas would impact the transportation systems of other counties more than the Plan.

Air Quality

Region-wide criteria pollutant emissions under the PILUT 2 Alternative are less than the criteria pollutant emissions under the 2004 RTP.

Tables 4-10 and 4-11 summarize the current and PILUT 2 criteria emissions estimated by nonattainment areas and SCAB counties, respectively. When compared to the current condition emissions, the PILUT 2 Alternative would result in fewer emissions of ROG, NOx, CO and SO_x for all nonattainment areas and SCAB counties and fewer emissions of PM_{10} for LA County and the SCAB as a whole. Emissions of PM_{10} for all counties combined would increase by 6% as a result of the PILUT 2 Alternative. This increase in PM_{10} emissions would be considered a significant impact. Antelope Valley, Coachella Valley and Victor Valley would experience the greatest increases in PM_{10} emissions. ROG emissions are expected to decrease as result of the PILUT 2 Alternative and therefore, the impact of volatile organic toxics will decrease comparatively. As shown in Table 4-12, PM_{10} emissions from heavy-duty trucks would be expected to decrease from 2000 levels for each county. This comparison gives a good indication of trends in TAC emissions from the transportation network. As a result of the anticipated decline in TAC emissions, the PILUT 2 Alternative would have a beneficial impact with respect to regional TAC emissions.

Localized impacts were assessed for the operation phase of the PILUT 2 Alternative. The risks associated with the PILUT 2 alternative are slightly less than those under the Plan, but would be significant.

Since PILUT 2 includes projects which improve and expand transportation infrastructure in the outlying areas, construction activity for PILUT 2 would be greater than that under the 2004 RTP. The PILUT 2 Alternative would be expected to generate a significant amount of construction activity and therefore exceed the significance thresholds established in the CEQA Guidelines. This would create a significant short-term impact. Localized impacts would also be considered

Table 4-10: Criteria Pollutant Emissions By Nonattainment Area
PILUT 2 Emissions in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		SCAB	Ventura	Antelope Valley	Victor Valley	Coachella Valley	Imperial	Sum
ROG	Current Conditions	412.61	21.28	8.07	14.37	7.54	10.47	474.34
	PILUT 2	67.1	4.07	3.85	3.88	2.19	5.69	86.78
	Difference	-345.51	-17.21	-4.22	-10.49	-5.35	-4.78	-387.56
	% Difference	-84%	-81%	-52%	-73%	-71%	-46%	-82%
NOx	Current Conditions	737.4	30.64	12.84	31.17	15.72	13.65	841.42
	PILUT 2	116.2	4.29	4.8	7.85	3.82	7.79	144.75
	Difference	-621.2	-26.35	-8.04	-23.32	-11.9	-5.86	-696.67
	% Difference	-84%	-86%	-63%	-75%	-76%	-43%	-83%
CO	Current Conditions	4222.49	194.27	86.74	169.97	88.96	105.86	4868.29
	PILUT 2	486.36	24.17	34.69	34.12	19.94	41.91	641.19
	Difference	-3736.13	-170.1	-52.05	-135.85	-69.02	-63.95	-4227.1
	% Difference	-88%	-88%	-60%	-80%	-78%	-60%	-87%
PM_{10}	Current Conditions	19.08	0.76	0.32	0.69	0.39	0.41	21.65
	PILUT 2	18.00	0.82	1.47	1.3	0.8	0.59	22.98
	Difference	-1.08	0.06	1.15	0.61	0.41	0.18	1.33
	% Difference	-6%	**8%**	**359%**	**88%**	**105%**	**44%**	**6%**
SO_x	Current Conditions	4.91	0.18	0.08	0.19	0.11	0.11	5.58
	PILUT 2	2.24	0.10	0.17	0.15	0.10	0.08	2.84
	Difference	-2.67	-0.08	0.09	-0.04	-0.01	-0.03	-2.74
	% Difference	-54%	-44%	113%	-21%	-9%	-27%	-49%

Source: SCAG 2003

significant. Other construction impacts include potential construction-related traffic impacts due to congestion from lane closures. These impacts should be addressed in the project level analysis.

Projected long-term emissions are considered to be cumulatively significant if they are not consistent with the local air quality management plans and state implementation plans. As previously indicated, regional emissions under PILUT 2 are less than the 2004 RTP. The 2004 RTP conforms with the local air quality management Plans and cumulative impacts are less than significant. Therefore, PILUT 2 emissions would also conform to the local air quality management plans and therefore have a less than significant cumulative impact.

PILUT 2 utilizes the Preferred Aviation Plan in the 2004 RTP. Emissions under the Preferred Plan increase when compared to current conditions and would be considered a significant impact.

Table 4-11: Criteria Pollutant Emissions By SCAB County (SCAB portion only)
Pilut 2 in 2030 Compared to Current Conditions (Emissions in 2000)
(in Tons per Day)

		Los Angeles	San Bernardino	Orange	Riverside	Sum
ROG	Current Conditions	257.99	37.94	76.18	40.51	412.62
	PILUT	36.44	7.86	13.4	9.39	67.09
	Difference	-221.55	-30.08	-62.78	-31.12	-345.53
	% Difference	-86%	-79%	-82%	-77%	-84%
NOx	Current Conditions	453.29	78.25	112.28	93.58	737.4
	PILUT 2	67.57	15.09	16.42	17.13	116.21
	Difference	-385.72	-63.16	-95.86	-76.45	-621.19
	% Difference	-85%	-81%	-85%	-82%	-84%
CO	Current Conditions	2651.92	378.73	751.59	440.25	4222.49
	PILUT 2	274.83	51.1	90.15	70.28	486.36
	Difference	-2377.09	-327.63	-661.44	-369.97	-3736.13
	% Difference	-90%	-87%	-88%	-84%	-88%
PM_{10}	Current Conditions	11.79	1.83	3.23	2.23	19.08
	PILUT 2	10.04	2.02	3.21	2.73	18
	Difference	-1.75	0.19	-0.02	0.5	-1.08
	% Difference	-15%	**10%**	-1%	**22%**	-6%
SO_x	Current Conditions	2.95	0.53	0.8	0.64	4.92
	PILUT 2	1.22	0.28	0.39	0.35	2.24
	Difference	-1.73	-0.25	-0.41	-0.29	-2.68
	% Difference	-59%	-47%	-51%	-45%	-54%

Source: SCAG 2003

Table 4-12: PILUT 2 Alternative PM_{10} Emissions for Heavy-Duty Trucks per Nonattainment Area (Tons per Day)

	SCAB	Ventura County	Antelope Valley	Victor Valley	Coachella Valley	Imperial County
2000 Base Year	6.70	0.20	0.08	0.27	0.13	0.22
PILUT 2	3.46	0.10	0.14	0.24	0.11	0.21
PM Exhaust Only						
2000 Base Year	5.88	0.16	0.06	0.23	0.11	0.21
PILUT 2	2.01	0.05	0.07	0.14	0.06	0.15

Source: Southern California Association of Governments

Emissions derived from DTIM 4.02 using EMFAC2002

Noise

With additional transportation improvements compared to the 2004 RTP the PILUT 2 Alternative would have more significant impact with regard to noise than the 2004 RTP.

Additional construction of transportation facilities would create more short-term noise impact than the 2004 RTP. This additional noise would be caused by more grading, use of power tools, and groundborne vibrations.

The impact of noise on sensitive land uses adjacent to transportation projects would be more significant with the PILUT 2 Alternative. Additional freeway and arterial construction would create more noise than the 2004 RTP.

The number of sensitive receptors impacted by the PILUT 2 Alternative is significant, but less than would be impacted by the 2004 RTP.

Cumulative and ambient noise would be greater in the PILUT 2 Alternative than in the 2004 RTP. With additional miles of transportation projects there would be greater noise generated, as well as more construction noise.

Aesthetics and Views

The PILUT 2 Alternative transportation projects would have greater direct impacts to aesthetics and views than the Plan Alternative. The PILUT 2 Alternative would have a greater impact on obstruction of scenic resources, creating contrasting land uses and adding visual elements to existing natural, rural, and open space areas because it contains projects in outlying parts of the region that would bring urban elements to rural areas. It also would include Maglev projects, goods movement capacity enhancements, and freight rail improvements that would obstruct views with elevated structures. The PILUT 2 Alternative would have an approximately equal impact on State Scenic Highways and vista points.

The growth distribution for the PILUT 2 Alternative would be more compact than for the Plan Alternative. The PILUT 2 Alternative would disperse growth into the outlying area. However, the PILUT 2 Alternative would intensify land uses and limit vacant land development, reducing cumulative impacts on views compared to the Plan Alternative.

Biological Resources

With a greater number of highway and arterial lane miles compared to the 2004 RTP, the PILUT 2 Alternative would disturb more biological resources. The impacts to natural vegetation, sensitive species and communities, habitat connectivity, near-road human disturbances, disturbances associated with construction generated smoke, light and noise; potential displacement of riparian and wetland areas, and siltation of water bodies would remain significant and would be increased compared to the 2004 RTP. The PILUT 2 Alternative would include projects that occur within 150

feet of more than 21,000 acres of natural vegetation (and potential sensitive species habitat) compared to the 15,000 acres near the Plan's transportation projects.[3]

Construction impacts related to trampling of vegetation would be less than significant (after application of mitigation measures listed for Impact 3.7-4); however the degree of these impacts would be greater than under the 2004 RTP. Neither the PILUT 2 Alternative nor the 2004 RTP would conflict with provisions of adopted Habitat Conservation Plans or Natural Communities Conservation Plans.

The PILUT 2 Alternative's cumulative biological impacts due to urban development patterns would be expected to be less severe than those of the 2004 RTP. The PILUT 2 Alternative would accommodate similar population, households and employment to the 2004 RTP, but the PILUT 2 Alternative would assume that infill, redevelopment, and centers-based development would be prevalent. If fully realized as envisioned, the PILUT 2 Alternative would be expected to consume less habitat than the Plan by 2030.

Cultural Resources

When compared to the 2004 RTP, the PILUT 2 Alternative would involve an increased number of highway and arterial lane miles. The impacts to cultural resources would remain significant and would be increased compared to the 2004 RTP.

The PILUT 2 Alternative's cumulative impacts due to urban development patterns would be expected to be less than those of the 2004 RTP. The PILUT 2 Alternative would accommodate similar population, households and employment to the 2004 RTP, but the infill pattern in existing inland communities would result in a population distribution that would be expected to consume less vacant land and thereby result in the disturbance of fewer previously undisturbed and potentially culturally significant areas by focusing growth to the outlying areas of the region. This strategy would cumulatively impact fewer cultural resources.

Geology, Soils, and Seismicity

Because the transportation projects in this alternative reach extensively into as-yet undeveloped parts of the region, a considerably greater acreage is impacted under each category of geologic and seismic factors, as compared to the Plan Alternative.

Hazardous Materials

In the PILUT 2 Alternative, heavy duty truck VMT would grow slightly more than for the Plan Alternative. Transportation of hazardous materials would also be slightly more, with greater risks, than for the Plan Alternative. Thus Impact 3.10-1 would be slightly greater under the PILUT 2 Alternative than under the Plan Alternative.

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[3] SCAG. (2003). GIS Analysis of the PILUT 2 Alternative and National Wetlands Inventory (Figure 3.3-2- U.S. Fish and Wildlife Service.)

Impact 3.10-2 relates to the use of hazardous materials during construction. Under the PILUT 2 Alternative, some additional transportation system investments would be made to support the decentralized development pattern. Thus, slightly more use of hazardous materials would occur during construction than for the 2004 RTP Alternative. This impact is still expected to be less than significant given the regulation of hazardous material usage.

Impact 3.10-3 relates to the risk of release of hazardous materials within one-quarter mile of a school. As a result of differences in the transportation system investments, new transportation projects in the PILUT 2 Alternative would be within a quarter-mile radius of 738 schools, which is nearly the same as the Plan Alternative (748). This impact would thus be about the same as for the Plan, and would still be significant even with mitigation.

Impact 3.10-4 relates to the risk of disturbing contaminated sites during construction. Since the PILUT 2 Alternative includes additional transportation system investments in outlying areas, it is unforeseeable whether this construction would be more or less likely to encounter contaminated sites. With the recommended mitigation measures, this impact would still be less-than-significant.

Cumulative Impact 3.10-5, which relates to hazardous materials transportation impacts on neighboring counties, would be greater for the PILUT 2 Alternative than for the 2004 RTP. This is because additional transportation system investments would be made in outlying areas that are closer to surrounding counties, and because heavy-duty truck VMT are projected to be slightly higher for this Alternative. This impact would still be significant.

Cumulative Impact 3.10-6 relates to the risk of disturbing contaminated sites during construction related to the region's growth as a whole. Since the PILUT 2 Alternative encourages both decentralized and infill development patterns, it is impossible to speculate whether it would disturb more or fewer contaminated sites than the 2004 RTP Alternative. However, this impact would still be less than significant with mitigation.

Energy

Impact 3.11-1 relates to the use of energy resources in construction and expansion of the regional transportation system. This impact would be slightly greater under the PILUT 2 Alternative than for the 2004 RTP due to the additional elements of transportation infrastructure in outlying areas. This impact would still be expected to be less-than significant.

Impact 3.11-2 relates to the use of energy resources in the operation of the regional transportation system. Transportation energy usage would be somewhat lower under the PILUT 2 Alternative compared with the 2004 RTP Alternative. However, the magnitude of this impact under the PILUT 2 Alternative would still be significant even after mitigation.

Cumulative Impact 3.11-3 is a significant impact relating to the overall growth in the use of energy resources for the SCAG region. As mentioned above, transportation energy consumption under

the PILUT 2 Alternative would be lower compared to the Plan Alternative.[4] The analysis of residential energy consumption indicates that the PILUT 2 Alternative would consume about the same amount of energy. This Alternative would involve more energy-intensive Central Valley and inland development, but would balance it with more reliance on multi-family dwellings in inland areas compared to the Plan Alternative. Overall, the magnitude of this impact under the PILUT 2 Alternative would be less than for the 2004 RTP Alternative, but it would still be cumulatively considerable and therefore significant.

Water Resources

With a greater number of highway and arterial lane miles compared to the 2004 RTP, the PILUT 2 Alternative would disturb more water resources. The direct impacts due to increased road runoff and drainage patterns would be greater than the Plan Alternative and significant. Impacts to groundwater infiltration due to increased impervious surfaces of roads, and due to increased flooding hazards would be less than significant with implementation of the mitigation measures described for Impacts 3.12-1 through 3.12-3, though these impacts would be greater than those of the 2004 RTP.

The PILUT 2 Alternative's cumulative impacts to water quality, groundwater recharge, and flood hazards due to urban development patterns would be expected to be less severe than those of the 2004 RTP, though still significant. The PILUT 2 Alternative would accommodate similar population, households and employment to the 2004 RTP, but the PILUT 2 Alternative would assume that infill, redevelopment, and centers-based development would be prevalent before 2010, regardless of the contents of local plans. The 2004 RTP assumes that the local land-use and transportation measures would experience a ramp-up period, and would not be prevalent until after 2010. Due to the Plan's increased consumption of land through 2010, and the aggressive infill strategies for outlying communities included in the PILUT 2 Alternative, the PILUT 2 Alternative would consume less land than the Plan by 2030.

The cumulative impacts on wastewater service capacity, due to the growth expected between the base year and 2030, would regionally be approximately the same in the PILUT 2 Alternative and the Plan. The total population in each county differs between the PILUT 2 Alternative and the Plan. Four counties are at or above their treatment capacity in the PILUT 2 Alternative, as for to the Plan, but the impacts are distributed to different counties than in the Plan. In the PILUT 2 Alternative, Imperial and Los Angeles County's wastewater treatment capacities would be exceeded (as in the Plan scenario), and the impacts to Riverside and San Bernardino counties would be greater. Neither Ventura nor Orange County would exceed their wastewater treatment capacities in the PILUT 2 Alternative. Though it is expected that services would be added as they are needed, for the purpose of determining significance of the impact, the future wastewater flow must be compared to the existing treatment capacity, and the impact of the PILUT 2 Alternative is significant and of similar regional magnitude to that of the Plan, though the impacts are distributed differently.

[4] The transportation fuel consumption in Imperial County for the PILUT 2 Alternative was assumed to be the same as for the 2004 RTP.

The PILUT 2 Alternative would distribute less growth within the MWD service area, and more to other water supply agencies relative to the Plan. These water agencies are smaller, and most occur in drier inland climates. Relative to the Plan Alternative, these factors would provide additional challenges in supplying municipal water to meet the demand associated with the PILUT 2 Alternative. The *existing* water supply and infrastructure would not be able to support the population in the PILUT 2 Alternative in 2030. Implementation of the mitigation measures would provide future supply, but the *existing* supply still falls short of future demand. The impact would remain significant and greater in magnitude than the Plan Alternative.

Public Services and Utilities

Under the PILUT 2 Alternative, the need for police and fire/emergency services and solid waste services would be approximately the same as if the Plan Alternative were implemented. The potential to sever underground utility lines would be approximately the same.

The cumulative impact of new development to accommodate the additional population would generate approximately the same need for additional emergency personnel, schools, and solid waste services and would result in approximately the same chance of severing underground utility lines for the PILUT 2 Alternative as for the Plan Alternative. The congestion that would result from the growth distribution of the PILUT 2 Alternative would result in emergency vehicle response times that are worse than the Plan Alternative.

The PILUT 2 Alternative is projected to result in approximately 689,000 households in areas where there is a high, very high, or extreme threat of wild fires compared to 731,000 households under the Plan Alternative. The PILUT 2 Alternative would have a lesser cumulative effect than the Plan Alternative in inducing growth in areas with high threats of wild fires.

THE ENVIRONMENTALLY SUPERIOR ALTERNATIVE

With fewer and less severe impacts than all other plan Alternatives, the PILUT 1 Alternative is the environmentally superior alternative.

5.0 LONG TERM EFFECTS

Long term effects of a project or plan include the significant and unavoidable impacts identified for each resource, any irreversible effects, cumulative impacts and/or growth-inducing impacts. Each of these types of long term effects for the 2004 RTP are listed below. Additional information on these impacts is available in the appropriate resource section in Chapter 3.0.

SIGNIFICANT AND UNAVOIDABLE ENVIRONMENTAL CHANGES

The environmental effects listed below are those that cannot be avoided if the 2004 RTP is implemented. They include impacts that can be mitigated but not reduced to a level of insignificance.

Impact 3.1-1: Implementation of the proposed 2004 RTP transportation projects would result in substantial disturbance and/or loss of prime farmlands or grazing lands throughout the six-county SCAG region.

Impact 3.1-2: Implementation of the projects included in the 2004 RTP would result in a substantial loss or disturbance of existing open space and recreation lands.

Impact 3.1-3: The proposed 2004 RTP contains transportation projects and strategies to distribute the future growth in the region. These projects and strategies potentially would result in inconsistencies with currently applicable adopted local land use plans and policies.

Cumulative Impact 3.1-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to land use and would change the intensity of land use in some areas.

Impact 3.2-1: Implementation of the 2004 RTP would facilitate substantial population growth to certain vacant areas of the region.

Impact 3.2-2: Implementation of the 2004 RTP projects would require the acquisition of rights-of way that displace a substantial number of existing homes or businesses.

Impact 3.2-3: The 2004 RTP has the potential to disrupt or divide a community by separating community facilities, restricting community access, and eliminating community amenities.

Cumulative Impact 3.2-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to currently vacant natural land.

Impact 3.3-1: In 2030 there would be substantially more total daily Vehicle Miles of Travel (VMT) than the current daily VMT. Implementation of the 2004 RTP would contribute to this increase.

Impact 3.3-2: In 2030 there would be substantially higher average Vehicle Hours Traveled (VHT) in delay than the current condition. Implementation of the 2004 RTP would contribute to this increase.

Impact 3.3-3: In 2030 there would be substantially greater average daily VHT in delay for heavy-duty truck trips than the current condition. Implementation of the 2004 RTP would contribute to this increase.

Cumulative Impact 3.3-7: Implementation of the 2004 RTP would contribute a cumulatively considerable amount of transportation impacts, such as VMT and all-vehicle VHT in delay, to counties outside of the SCAG region.

Impact 3.4-1a: Under the Plan, PM10 emissions from on-road mobile sources would increase when compared to current conditions.

Impact 3.4-2: Long-term (Operational) Localized Impacts

Freeway operations under the Plan would be likely to exceed the locally acceptable cancer risk of 1 in one million.

Impact 3.4-3: Site preparation (grading/excavation) and construction activities associated with the proposed freeway, arterial, transit and Maglev projects identified in the 2004 RTP would intermittently and temporarily create air emissions.

Impact 3.4-4: Short-term Localized Impacts

The cancer risk associated with construction projects under the Plan would likely exceed the locally acceptable cancer risk of 1 in one million.

Impact 3.4-5: Increased air traffic would increase emissions from aircraft and ground support equipment.

Impact 3.5-1: Grading and construction activities associated with the proposed freeway, arterial, transit and Maglev projects identified in the 2004 RTP would intermittently and temporarily generate noise levels above ambient background levels. Noise levels in the immediate vicinity of the construction sites would increase substantially sometimes for extended duration.

Impact 3.5-2: Noise-sensitive land uses could be exposed to noise in excess of normally acceptable noise levels or substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.)

Impact 3.5-3: Sensitive receptors would be exposed to noise in excess of normally acceptable noise levels or substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, etc.).

Cumulative Impact 3.5-4: Regional ambient noise levels potentially could increase to exceed normally acceptable noise levels or have substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, airports, and ports, etc.).

Impact 3.6-1: Construction and implementation of individual 2004 RTP projects potentially would obstruct views of scenic resources.

Impact 3.6-2: Construction and implementation of the proposed project potentially would alter the appearance of scenic resources along or near designated scenic highways and vista points.

Impact 3.6-3: Construction and implementation of the proposed project would create significant contrasts with the overall visual character of the existing landscape setting.

Impact 3.6-4: The projects in the 2004 RTP would add visual elements of urban character to an existing natural, rural and open space area.

Cumulative Impact 3.6-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the overall visual character of the existing landscape setting.

Impact 3.7-1: Transportation projects included in the 2004 RTP on previously undisturbed land would potentially displace natural vegetation, and thus habitat, some of which is utilized by sensitive species in the SCAG region.

Impact 3.7-2: The 2004 RTP would potentially contribute to the fragmentation of existing habitat, decreasing habitat patch sizes, reducing habitat connectivity, and causing direct injury to wildlife. The 2004 RTP includes new transportation corridors that may from barriers to animal migration or foraging routes.

Impact 3.7-3: The 2004 RTP includes new transportation facilities that would potentially increase near-road human disturbances such as litter, trampling, light pollution and road noise in previously relatively inaccessible and undisturbed natural areas.

Impact 3.7-5: The 2004 RTP projects would potentially create noise, smoke, lights and/or other disturbances to biological resources during construction phases for these projects.

Impact 3.7-6: The 2004 RTP includes projects that would potentially displace riparian or wetland habitat.

Impact 3.7-7: The 2004 RTP would potentially increase siltation of streams and other water resources from exposures of erodible soils during construction activities.

Cumulative Impacts 3.7-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization.

Impact 3.8-1: Development of highway, arterial and transit projects potentially would impact historic resources.

Impact 3.8-2: Construction activities involving excavation and earthmoving may encounter archaeological resources.

Impact 3.8-3: Construction activities involving excavation and earthmoving may encounter paleontological materials.

Cumulative Impact 3.8-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to existing historic resources and previously undisturbed and undiscovered cultural resources, as described in Impacts 3.8-1 through 3.8-4.

Impact 3.9-2: Highway and rail construction can require significant earthwork and road cuts, increasing long-term erosion potential and slope failure. Earthwork can also alter unique geologic features.

Cumulative Impact 3.9-4: The actions considered by the 2004 RTP have the potential to cause cumulatively considerable adverse effects on human beings, when considered at the regional scale.

Impact 3.10-1: The implementation of the 2004 RTP would create a potential hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during transportation.

Impact 3.10-3: Implementation of the 2004 RTP would result in the potential release of hazardous materials within one-quarter mile of a school.

Cumulative Impact 3.10-5: The 2004 RTP would contribute a cumulatively significant amount of hazardous material transportation impacts to counties outside of the SCAG region.

Impact 3.11-2: The implementation of the 2004 RTP is likely to substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other non-renewable energy types in the operation of the transportation system between the current conditions and 2030.

Cumulative Impact 3.11-3: Implementation of the investments and policies in the 2004 RTP would contribute to a cumulatively considerable increase in the amount of total energy consumed in the SCAG region between 2000 and 2030.

Impact 3.12-1: Local surface water quality would potentially be degraded by increased roadway runoff created by RTP projects, potentially violating water quality standards associated with wastewater and stormwater permits. These projects would potentially alter the existing drainage patterns in ways that would result in substantial erosion or siltation.

Cumulative Impact 3.12-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to water quality.

Cumulative Impact 3.12-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to stormwater infiltration and groundwater recharge.

Cumulative Impact 3.12-6: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in flooding hazard impacts.

Cumulative Impact 3.12-7: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the need for increased wastewater treatment capacities in the region by 2030.

Cumulative Impact 3.12-8: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to an increased demand for water supply and its associated infrastructure. Comparing 2030 demands to existing supplies does not fully reflect the ongoing water planning conducted by water agencies in the region. While existing supplies and infrastructure may not be sufficient to meet expected 2030 demands, most water agencies have plans in place to respond to future growth. However, the *existing* water supplies and infrastructure would not be sufficient to meet the expected demand in 2030.

Cumulative Impact 3.13-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable fire threat to development in the SCAG Region.

Cumulative Impact 3.13-6: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the staffing level of police and fire and emergency services in the SCAG Region.

Cumulative Impact 3.13-7: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the number of school-age children and the demand for school facilities in different parts of the SCAG Region.

Cumulative Impact 3.13-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence would create a cumulatively considerable impact to the demand for solid waste services in the SCAG region.

SIGNIFICANT AND IRREVERSIBLE IMPACTS

Significant, irreversible impacts are those significant impacts that commit non-renewable resources, impacts that provide access to an area for growth, and other impacts that generally commit future generations to similar uses. The significant, irreversible impacts associated with implementation of the 2004 RTP are listed below.

Impact 3.1-1: Implementation of the proposed 2004 RTP transportation projects would result in substantial disturbance and/or loss of prime farmlands or grazing lands throughout the six-county SCAG region.

Impact 3.1-2: Implementation of the projects included in the 2004 RTP would result in a substantial loss or disturbance of existing open space and recreation lands.

Cumulative Impact 3.1-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to land use and would change the intensity of land use in some areas.

Impact 3.2-1: Implementation of the 2004 RTP would facilitate substantial population growth to certain vacant areas of the region.

Impact 3.2-2: Implementation of the 2004 RTP projects would require the acquisition of right-of ways that displace a substantial number of existing homes or businesses.

Impact 3.2-3: The 2004 RTP has the potential to disrupt or divide a community by separating community facilities, restricting community access, and eliminating community amenities.

Cumulative Impact 3.2-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to currently vacant natural land.

Impact 3.6-1: Construction and implementation of individual 2004 RTP projects potentially would obstruct views of scenic resources.

Impact 3.6-2: Construction and implementation of the proposed project potentially would alter the appearance of scenic resources along or near designated scenic highways and vista points.

Impact 3.6-3: Construction and implementation of the proposed project potentially would create significant contrasts with the overall visual character of the existing landscape setting.

Impact 3.6-4: The projects in the 2004 RTP potentially would add visual elements of urban character to an existing natural, rural, and open space area.

Cumulative Impact 3.6-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the overall visual character of the existing landscape setting.

Impact 3.7-1: Transportation projects included in the 2004 RTP on previously undisturbed land would potentially displace natural vegetation, and thus habitat, some of which is utilized by sensitive species in the SCAG region.

Impact 3.7-2: The 2004 RTP would potentially contribute to the fragmentation of existing habitat, decreasing habitat patch sizes, reducing habitat connectivity, and causing direct injury to wildlife. The 2004 RTP includes new transportation corridors that may from barriers to animal migration or foraging routes.

Impact 3.7-3: The 2004 RTP includes new transportation facilities that would potentially increase near-road human disturbances such as litter, trampling, light pollution and road noise in previously relatively inaccessible and undisturbed natural areas.

Impact 3.7-6: The 2004 RTP includes projects that would potentially displace riparian or wetland habitat.

Cumulative Impacts 3.7-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization.

Impact 3.8-1: Development of highway, arterial and transit projects potentially would impact historic resources.

Impact 3.8-2: Construction activities involving excavation and earthmoving would potentially encounter archaeological resources.

Impact 3.8-3: Construction activities involving excavation and earthmoving may encounter paleontological materials.

Cumulative Impact 3.8-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to existing historic resources and previously undisturbed and undiscovered cultural resources, as described in Impacts 3.8-1 through 3.8-4.

Impact 3.9-2: Highway and rail construction can require significant earthwork and road cuts, increasing long-term erosion potential and slope failure. Earthwork can also alter unique geologic features. The impacts of projects considered as part of the 2004 RTP would be considered significant in some cases.

Impact 3.11-2: The implementation of the 2004 RTP is likely to substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other non-renewable energy types in the operation of the transportation system between the current conditions and 2030. This would be a significant impact.

Cumulative Impact 3.11-3: Implementation of the investments and policies in the 2004 RTP would contribute to a cumulatively considerable increase in the amount of total energy consumed in the SCAG region between 2000 and 2030. This would be a significant impact.

CUMULATIVE IMPACTS

Cumulative impacts are the collective impacts created as a result of the implementation of the 2004 RTP in combination with other projects causing related impacts. Through 2030 many projects will occur within the SCAG region and the impacts listed below constitute the cumulatively considerable contribution of the 2004 RTP.

Cumulative Impact 3.1-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to land use and would change the intensity of land use in some areas.

Cumulative Impact 3.2-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to currently vacant natural land.

Impact 3.3-1: In 2030 there would be substantially more total daily Vehicle Miles of Travel (VMT) than the current daily VMT. Implementation of the 2004 RTP would contribute to this increase.

Impact 3.3-2: In 2030 there would be substantially higher average delay than the current condition. Implementation of the 2004 RTP would contribute to this increase.

Impact 3.3-3: In 2030 there would be substantially greater average delay for heavy-duty truck trips than the current condition. Implementation of the 2004 RTP would contribute to this increase.

Cumulative Impact 3.3-7: Implementation of the 2004 RTP would contribute a cumulatively considerable amount of transportation impacts, such as VMT and all-vehicle VHT in delay, to counties outside of the SCAG region.

Cumulative Impact 3.5-4: Regional cumulative ambient noise levels potentially could increase to exceed normally acceptable noise levels or have substantial increases in noise as a result of the operation of expanded or new transportation facilities (i.e., increased traffic resulting from new highways, addition of highway lanes, roadways, ramps, and new use of new transit facilities as well as increased use of existing transit facilities, airports, and ports, etc.).

Cumulative Impact 3.6-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the overall visual character of the existing landscape setting.

Cumulative Impacts 3.7-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization.

Cumulative Impact 3.8-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to existing historic resources and previously undisturbed and undiscovered cultural resources, as described in Impacts 3.8-1 through 3.8-4.

Cumulative Impact 3.9-4: The actions considered by the 2004 RTP have the potential to cause cumulatively considerable adverse effects on human beings when considered at the regional scale.

Impact 3.10-1: The implementation of the 2004 RTP would create a potential hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during transportation. This would be a significant impact.

Cumulative Impact 3.10-5: The 2004 RTP would contribute a cumulatively significant amount of hazardous material transportation impacts to counties outside of the SCAG region.

Impact 3.11-2: The implementation of the 2004 RTP is likely to substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other non-renewable energy types in the operation of the transportation system between the current conditions and 2030.

Cumulative Impact 3.11-3: Implementation of the investments and policies in the 2004 RTP would contribute to a cumulatively considerable increase in the amount of total energy consumed in the SCAG region between 2000 and 2030.

Cumulative Impact 3.12-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to water quality.

Cumulative Impact 3.12-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to stormwater infiltration and groundwater recharge.

Cumulative Impact 3.12-6: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in flooding hazard impacts.

Cumulative Impact 3.12-7: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the need for increased wastewater treatment capacities in the region by 2030.

Cumulative Impact 3.12-8: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to an increased demand for water supply and its associated infrastructure. Comparing 2030 demands to existing supplies does not fully reflect the ongoing water planning conducted by water agencies in the region. While existing supplies and infrastructure may not be sufficient to meet expected 2030 demands, most water agencies have plans in place to respond to future growth. However, the *existing* water supplies and infrastructure would not be sufficient to meet the expected demand in 2030.

Cumulative Impact 3.13-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable fire threat to development in the SCAG Region.

Cumulative Impact 3.13-6: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional

cumulatively considerable impacts to the staffing level of police and fire and emergency services in the SCAG Region.

Cumulative Impact 3.13-7: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the number of school-age children and the demand for school facilities in different parts of the SCAG Region.

Cumulative Impact 3.13-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence would create a cumulatively considerable impact to the demand for solid waste services in the SCAG region.

GROWTH-INDUCING IMPACTS

Growth inducing impacts are those, often secondary, impacts that result from fostering economic growth or removing obstacles to growth, such as providing access to an area previously inaccessible to growth.

The Plan would result in a distribution of people, jobs, and households differing from the base year and the No Project Alternative. Changes in policies and investments would shift the population distribution expected in 2030, as a function of changes in mobility and land use decisions. The associated growth-inducing impacts of the 2004 RTP and the associated indirect environmental effects are listed below.

Impact 3.1-1: Implementation of the proposed 2004 RTP transportation projects would result in substantial disturbance and/or loss of prime farmlands or grazing lands throughout the six-county SCAG region.

Impact 3.1-2: Implementation of the projects included in the 2004 RTP would result in a substantial loss or disturbance of existing open space and recreation lands.

Impact 3.1-3: The proposed 2004 RTP contains transportation projects and strategies to distribute the future growth in the region. These projects and strategies potentially would result in inconsistencies with currently applicable adopted local land use plans and policies.

Cumulative Impact 3.1-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to land use and would change the intensity of land use in some areas.

Impact 3.2-1: Implementation of the 2004 RTP would facilitate substantial population growth to certain vacant areas of the region.

Impact 3.2-2: Implementation of the 2004 RTP projects would require the acquisition of rights-of-way that displace a substantial number of existing homes and businesses.

Impact 3.2-3: The 2004 RTP has the potential to disrupt or divide a community by separating community facilities, restricting community access, and eliminating community amenities.

Cumulative Impact 3.2-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to currently vacant natural land.

Impact 3.3-1: In 2030 there would be substantially more total daily Vehicle Miles of Travel (VMT) than the current daily VMT. Implementation of the 2004 RTP would contribute to this increase.

Impact 3.3-2: In 2030 there would be substantially higher average delay than the current condition. Implementation of the 2004 RTP would contribute to this increase.

Impact 3.3-3: In 2030 there would be substantially greater average delay for heavy-duty truck trips than the current condition. Implementation of the 2004 RTP would contribute to this increase.

Cumulative Impact 3.3-7: Implementation of the 2004 RTP would contribute a cumulatively considerable amount of transportation impacts, such as VMT and all-vehicle VHT in delay, to counties outside of the SCAG region.

Cumulative Impact 3.6-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the overall visual character of the existing landscape setting.

Cumulative Impacts 3.7-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization.

Cumulative Impact 3.8-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to existing historic resources and previously undisturbed and undiscovered cultural resources, as described in Impacts 3.8-1 through 3.8-4.

Cumulative Impact 3.9-4: The actions considered by the 2004 RTP have the potential to cause cumulatively considerable adverse effects on human beings when considered at the regional scale.

Cumulative Impact 3.10-5: The 2004 RTP would contribute a cumulatively significant amount of hazardous material transportation impacts to counties outside of the SCAG region.

Cumulative Impact 3.11-3: Implementation of the investments and policies in the 2004 RTP would contribute to a cumulatively considerable increase in the amount of total energy consumed in the SCAG region between 2000 and 2030.

Cumulative Impact 3.12-4: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to water quality.

Cumulative Impact 3.12-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in impacts to stormwater infiltration and groundwater recharge.

Cumulative Impact 3.12-6: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the conversion of undeveloped land to urban uses, resulting in flooding hazard impacts.

Cumulative Impact 3.12-7: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to the need for increased wastewater treatment capacities in the region by 2030.

Cumulative Impact 3.12-8: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth would contribute to an increased demand for water supply and its associated infrastructure. Comparing 2030 demands to existing supplies does not fully reflect the ongoing water planning conducted by water agencies in the region. While existing supplies and infrastructure may not be sufficient to meet expected 2030 demands, most water agencies have plans in place to respond to future growth. However, the *existing* water supplies and infrastructure would not be sufficient to meet the expected demand in 2030.

Cumulative Impact 3.13-5: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable fire threat to development in the SCAG Region.

Cumulative Impact 3.13-6: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional

cumulatively considerable impacts to the staffing level of police and fire and emergency services in the SCAG Region.

Cumulative Impact 3.13-7: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and by inclusion of land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence on growth contributes to regional cumulatively considerable impacts to the number of school-age children and the demand for school facilities in different parts of the SCAG Region.

Cumulative Impact 3.13-8: Implementation of the 2004 RTP in combination with potential changes to the growth distribution potentially would uncover and potentially sever underground utility lines (electric and natural gas).

Cumulative Impact 3.13-9: Urbanization in the SCAG region will increase substantially by 2030. The 2004 RTP, by increasing mobility and including land-use-transportation measures, influences the pattern of this urbanization. The 2004 RTP's influence would create a cumulatively considerable impact to the demand for solid waste services in the SCAG region.

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ACRONYMS

2003 AQMP	2003 Air Quality Management Plan
AB	Assembly Bill
AB 1807	Toxic Air Contaminant Identification and Control Act
AB 2588	Air Toxics “Hot Spots” Information and Assessment Act
af	Acre-feet
AFP-42	United States Air Force Plant 42
AFV	Alternative Fuel Vehicles
afy	Acre-feet per year
ALA	Aviation Landing Aids
ALP	Airport Layout Plans
ALUC	Airport Land Use Commission
APCD	Air Pollution Control District
AQMD	Air Quality Management District
ARB	California Air Resources Board
ARPA	Archeological Resources Protection Act
ASL	Above Sea Level
AVAQMD	Antelope Valley Air Quality Management District
BLM	United States Bureau of Land Management
BMPs	Best Management Practices
BNSF	Burlington Northern Santa Fe Railroad
BRT	Bus Rapid Transit
BTU	British Thermal Units
BUR	Bob Hope Airport

CAA	Federal Clean Air Act
CAFE	Corporate Average Fuel Economy
Cal/EPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CASAC	Clean Air Scientific Advisory Committee
CBSC	California Building Standards Code
CCA	California Coastal Act
CCC	California Coastal Commission
CCR	California Code of Regulations
CDF	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CDPR	California Department of Parks and Recreation
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CHL	California Historical Landmark
CHP	California Highway Patrol
CHRI	California Historic Resources Inventory
CIWMB	California Integrated Waste Management Board
CMA	Congestion Management Agencies

CMP	Congestion Management Plan
CMS	Congestion Management System
CMSA	Consolidated Metropolitan Statistical Area
CNDDB	California Department of Fish and Game Natural Diversity Database
CNEL	Community Noise Equivalent Level
CO	Carbon Monoxide
COG	Council of Government
CTC	County Transportation Commission
CUPA	Certified Uniform Program Agencies
CVP	Central Valley Project
CWA	Clean Water Act
CWAP	Clean Water Action Plan
dB	Decibels
DHS	Department of Health Services
DNL	Day-Night Average Noise Level
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
EDMS	Emission and Dispersion Model
EIR	Environmental Impact Report
EMFAC	Air Resources Board Mobile Source Emissions Inventory Model
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act

FHWA	Federal Highway Administration
FTA	Federal Transit Administration
g	Gravity
GIS	Geographic Information Systems
GSE	Ground Support Equipment
HAP	Hazardous Air Pollutants
HCP	Habitat Conservation Plan
HOT	High Occupancy Toll Lanes
HOV	High Occupancy Vehicle
I	Interstate
ICAPCD	Imperial County Air Pollution Control District
IID	Imperial Irrigation District
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITS	Intelligent Transportation System
IVAG	Imperial Valley Association of Governments
kWh	Kilowatt Hours
LACMTA	Los Angeles County Metropolitan Transportation Authority
LAFCO	Local Agency Formation Commission
LAUPT	Los Angeles Union Passenger Terminal
LAX	Los Angeles International Airport
LCP	Local Coastal Program
LEA	Local Enforcement Agency
L_{eq}	Equivalent Noise Level
LESA	Land Evaluation and Site Assessment
LGB	Long Beach Airport

L_{max}	Maximum Measured Noise Level
LTO	Landing Take-off
MACT	Maximum Achievable Control Technology
maf	Million Acre-feet
Maglev	Magnetic Levitation Train
MAP	Million Air Passengers
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
mgd	Million Gallons per Day
MM	Modified Mercalli
mm/yr	Millimeter per Year
mph	Miles per Hour
MPO	Metropolitan Planning Organization
MRF	Material Recovery Facility
MS4	Municipal Separate Storm Sewer System
MTBE	Methyl Tertiary Butyl Ether
MWD	Metropolitan Water District
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NAGPRA	Native American Graves and Repatriation Act
NAHC	National American Heritage Committee
NCCP	National Community Conservation Planning Program
NCP	National Contingency Plan
NCPPA	Natural Community Conservation Planning Act
NEPA	National Environmental Protection Act

NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NO_2	Nitrogen Dioxide
NOP	Notice of Preparation
NOX	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act
NPS	National Park Service
NR	National Register of Historic Places
NRCS	Natural Resource Conservation Service
O&M	Operation and Maintenance
O3, O_3	Ozone
OCTA	Orange County Transportation Authority
OEHHA	California Office of Environmental Health Hazard Assessment
OHMS	Office of Hazardous Materials and Safety
ONT	Ontario International Airport
PAHs	Polynuclear Aromatic Hydrocarbons
Pb	Lead
PCH	Pacific Coast Highway
PEIR	Program Environmental Impact Report
PILUT	Planning for Integrated Land Use and Transportation
Plan	Regional Transportation Plan
PM	Particulate Matter
PM10, PM_{10}	Particulate Matter with Diameter < 10 Microns
PMD	Palmdale Regional Airport

POM	Polycyclic Organic Matter
POTW	Publicly Owned Treatment Works
ppm	Parts per Million
PRC	Public Resources Code
PSD	Prevention of Significant Deterioration
PSP	Palm Springs International Airport
RCPG	Regional Comprehensive Plan and Guide
RCRA	Resource Conservation and Recovery Act
RCTC	Riverside County Transportation Commission
RHNA	Regional Housing Needs Assessment
RIV	March Air Reserve Basin / March Inland Port
ROG	Reactive Organic Gases
RPS	Renewable Portfolio Standard
RSPA	Research and Special Programs Administration
RTA	Riverside Transit Agency
RTDM	Regional Travel Demand Model
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RWQCB	Regional Water Quality Control Board
SBA	San Bernardino Airport
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCAT	South Coast Area Transit

SCCAB	South Central Coast Air Basin
SCH	State Clearinghouse
SCRRA	Southern California Regional Rail Authority
SEL	Sound Exposure Level
SHPO	California State Office of Historic Preservation
SIP	State Implementation Plan
SMARA	Surface Mining Area Reclamation Act
SNA	John Wayne Airport
SO2, SO_2	Sulfur Dioxide
SOAR	Save Open Space and Agricultural Resources
SOX	Sulfur Oxides
SR	State Route
SSAB	Salton Sea Air Basin
STIP	State Transportation Improvement Program
SWFP	Solid Waste Facility Permit
SWMP	Storm Water Management Plan
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SY	School Year
TACs	Toxic Air Contaminants
T-BACT	Best Available Control Technology for Toxics
TCC	Transportation and Communications Committee
TCMs	Transportation Control Measures
TCRP	Traffic Congestion Relief Plan
TDM	Transportation Demand Management

TEA-21	Transportation Equity Act for the 21st Century
TEUs	Twenty-foot Equivalent Units
TIP	Transportation Improvement Program
TMDL	Total Maximum Daily Loads
TOAL	Take-off and Landings
TSDF	Treatment, Storage, and Disposal Facility
TSM	Transportation System Management
TSP	Total Suspended Particulate
U.S. 101	Hollywood Freeway
UBC	Uniform Building Code
UP	Union Pacific Railroad
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UWA	Unified Watershed Assessment
VCAPCD	Ventura County Air Pollution Control District
VCTC	Ventura County Transportation Commission
VCV	Southern California Logistics Airport
VHD	Vehicle Hours of Delay
VHT	Vehicle Hours of Travel
VMT	Vehicle Miles Traveled

WDR	Waste Discharge Requirements
WRCB	State Water Resources Control Board
WRR	Water Reclamation Requirements

7.0 TECHNICAL APPENDICES

7.1 NOTICE OF PREPARATION

Notice of Preparation

TO: Interested Agencies and Individuals

SUBJECT: NOTICE OF PREPARATION OF A PROGRAM ENVIRONMENTAL IMPACT REPORT (PEIR) FOR THE 2004 REGIONAL TRANSPORTATION PLAN (RTP)

DATE: JUNE 9, 2003

LEAD AGENCY:
Southern California Association
of Governments (SCAG)
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

The Southern California Association of Governments, as Lead Agency, will prepare a Program Environmental Impact Report (PEIR) in accordance with the California Environmental Quality Act (CEQA) for the 2004 Regional Transportation Plan (RTP).

The purpose of this Notice of Preparation (NOP) is to help seek all relevant comments pertaining to the scope and content of the environmental information that will be evaluated in the PEIR. The project location, description, and the expected scope of environmental analysis are contained in the materials below.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but **not later than 30 days** after receipt of this notice.

Please send your response to Ted Harris at harrist@scag.ca.gov or at the address shown above or visit our website at http://www.scag.ca.gov. Please include a return address and the name of a contact person in your agency, if appropriate. Please send your comment electronically if feasible.

Ted Harris
Regional Environmental Planner
(213) 236-1916
harrist@scag.ca.gov

Attachments: Location and Background, Project Description, and Scope of Environmental Analysis
Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

PROGRAM ENVIRONMENTAL IMPACT REPORT (PEIR) FOR THE 2004 REGIONAL TRANSPORTATION PLAN LOCATION AND BACKGROUND

The Southern California Association of Governments (SCAG), which is comprised of six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura) and 186 cities in southern California, is the organization charged with examining and helping to resolve short- and long-term issues affecting the region, particularly those related to transportation. The region has more than 16 million residents and encompasses more than 38,000 square miles, representing the largest and most diverse region in the country.

Decision-making happens through SCAG's Regional Council, a governing body of over 70 city and county elected officials and county transportation commissioners. In addition to the Regional Council, there are four committees: Administration Committee, Transportation and Communications Committee, Community, Economic and Human Development Committee, and Energy and Environment Committee. These committees are comprised of Regional Council members, elected official representatives from subregional organizations, single-purpose regional planning organizations, county transportation commissions, the California Department of Transportation (Caltrans), and members representing the Regional Advisory Council -- SCAG's community and private sector advisory group. In addition to the four policy committees, there are various task forces and subcommittees which address specific regional policy and technical planning issues.

SCAG is officially designated by the Federal and State governments as a Council of Governments (COG), a Multi-County Designated Transportation Planning Agency, and the Metropolitan Planning Organization (MPO) for the southern California region. As such, SCAG has a number of formal authorities and responsibilities, including:

- Conducting a comprehensive transportation planning process that results in a Regional Transportation Plan (RTP) and a Regional Transportation Improvement Program (RTIP). Together these documents serve as the legal basis for transportation decision-making in the region.
- Conducting a comprehensive environmental planning process, including a Program Environmental Impact Report (PEIR) for the Regional Transportation Plan and reviewing and assessing Environmental Impact Reports (EIRs) for all projects of regional significance.
- Determining, pursuant to the Clean Air Act, the conformity of SCAG projects, plans, and programs to air quality requirements.
- Serving as the Areawide Waste Treatment Management Planning Agency under the Federal Water Pollution Control Act.
- Developing demographic projections and the integrated land use, housing, employment, and transportation programs, measures, and strategies portions of the South Coast Air Quality Management Plan.

- Conducting inter-governmental review of programs proposed for Federal assistance.
- Preparing Regional Housing Needs Assessment allocations for cities and counties.

PROJECT DESCRIPTION

The Regional Transportation Plan (RTP) for Southern California, last updated in April 2001, provides an assessment of the overall growth and economic trends in six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura), and provides a blueprint for a cohesive, balanced, and multi-modal transportation system. The RTP is intended to serve as a catalyst for linking transportation agency investments within the SCAG region, and it addresses regional goals and is consistent with Federal and State requirements. Major transportation projects receiving either Federal or State funding must be consistent with the provisions of the latest Plan, and, thus, the RTP is a critical document to help ensure adequate Federal and State funding needed to maintain and improve mobility and accessibility throughout Southern California.

SCAG is required to update and revise the RTP and the RTP PEIR at least once every three years. SCAG is currently preparing the 2004 RTP and the RTP Program Environmental Impact Report (PEIR).

The 2004 RTP and PEIR are being developed as part of an innovative planning process that integrates transportation, land-use, and the environment. The process, known as PILUT—Planning for Integrated Land Use and Transportation—is being guided by Compass Growth Visioning, which is a participatory effort to help move Southern California towards a more sustainable future (http://www.socalcompass.org).

The PILUT Process will evaluate a range of 2004 RTP/PEIR Alternatives, which are currently being developed. During the initial planning phase, each Alternative will be evaluated with a multi-criterion analysis that considers transportation, land use, environmental, economic, and social factors. These factors will be presented to the Regional Council in summer/autumn 2003 to inform the selection of the Preferred Alternative.

Preliminary Plan Alternatives

It is anticipated that the 2004 RTP and RTP PEIR will evaluate at least four Alternatives. These Alternatives will change and mature as the 2004 RTP planning process proceeds. Each Alternative, except the No Project Alternative, will include a distinct, cohesive set of 1) transportation investments 2) transportation policies 3) growth policies, and 4) a growth projection. Each Alternative will include a wide range of projects including, but not limited to, aviation, bus routes, freight rail, high-speed passenger rail, highway/roadway construction and widening, and passenger rail construction.

SCAG has the discretion to select an Alternative in its entirety or to combine elements of various Alternatives to develop the final Alternative selected for the RTP and EIR. Initial Alternatives include:

No Project Alternative

The No Project Alternative consists of all major projects that are reasonably foreseeable and reasonably expected to go forward without the 2004 RTP, including all projects that have already received funding, are scheduled to receive funding, and/or have received environmental clearance. The No Project Alternative will assume that no safety-related maintenance would be deferred, but the overall appearance and function of the transportation system would be expected to deteriorate.

Modified 2001 Regional Transportation Plan (RTP) Alternative

The 2001 Regional Transportation Plan, adopted in April 2001, will be updated and revised to serve as a 2004 RTP/PEIR Alternative. The base year will be adjusted to year 2000, the planning horizon will be extended to year 2030, and some projects will be changed. A complete listing of original projects in the 2001 RTP is available in the SCAG database, and the 2001 RTP is available at the SCAG website: http://www.scag.ca.gov/rtp/mainrtp.html

PILUT Alternative One

The PILUT Alternatives will be developed and evaluated through the PILUT Process (Planning for Integrated Land Use and Transportation). Each PILUT alternative will include aviation, bus routes, freight rail, high-speed passenger rail, highway/roadway construction and widening, and passenger rail construction throughout the SCAG region. However, PILUT1 will include projects and policies designed to help guide growth toward a more centralized urban form. Specifically, PILUT1 will focus on more efficiently utilizing the existing transportation infrastructure and improving connectivity and transit to support more infill, mixed-use, pedestrian-friendly neighborhoods.

PILUT Alternative Two

As stated above, each PILUT alternative will include aviation, bus routes, freight rail, high-speed passenger rail, highway/roadway construction and widening, and passenger rail construction throughout the SCAG region. However, PILUT2 will include projects and policies designed to help guide growth toward a more decentralized urban form. Specifically, PILUT2 will focus on improving and expanding infrastructure to utilize undeveloped land on the outer edges of the urbanized area.

After finalizing and evaluating these preliminary Alternatives (and additional Alternatives if time and resources allow), the Regional Council will select a single Preferred Alternative before autumn 2003. The Draft RTP and Draft PEIR are expected to be available by late autumn of 2003, followed by a 45-day public comment period. A joint public hearing on the RTP and the PEIR will be scheduled for autumn 2003 or winter 2004. The Final RTP and PEIR will be adopted by the Regional Council in April 2004.

SCOPE OF ENVIRONMENTAL ANALYSIS

The California Environmental Quality Act (CEQA) and CEQA Guidelines require an Environmental Impact Report (EIR) for any discretionary government action, including programs and plans, that may cause significant environmental effects. Specifically, the RTP necessitates a Program EIR (PEIR), which is a "first-tier" CEQA document designed to consider "broad policy alternatives and programwide mitigation measures" (CEQA Guidelines §15168). The programmatic environmental analysis for the PEIR will evaluate environmental effects, such as direct and indirect effects, growth-inducing impacts, and cumulative impacts, and will include mitigation measures to offset potentially significant effects. In addition, the PEIR will supply the foundation for the subsequent, site-specific environmental reviews that will be conducted by implementation agencies, as projects in the RTP are developed (CEQA Guidelines §15385).

In addition to fulfilling legal requirements, the RTP EIR will provide an opportunity to inform decision-makers and the public about potential environmental effects of the RTP Alternatives. This environmental analysis will ultimately support the selection of the Preferred Plan, and will provide a useful regional-scale environmental planning tool to help local agencies evaluate and reduce cumulative environmental effects.

The impact categories listed below have been preliminarily identified for analysis in the 2004 RTP PEIR.

1) Land Use
2) Population, Employment, and Housing
3) Transportation
4) Air Quality
5) Water Resources
6) Noise
7) Public Service and Utilities
8) Cultural Resources
9) Biological Resources
10) Geology
11) Energy
12) Visual/Aesthetic Resources

For additional background information, the PEIR for the 2001 RTP is available at the SCAG website: http://www.scag.ca.gov/peir/. Although many of the significant impacts identified in the 2001 RTP PEIR will be relevant in the 2004 RTP PEIR, the 2004 RTP PEIR will provide additional evaluation of alternatives, cumulative impacts, growth-inducing impacts, and mitigation measures, as feasible.

SUMMARY

This Notice of Preparation is intended to inform agencies and individuals of the preparation of the 2004 RTP PEIR. Comments regarding the scope of the PEIR received during the 30-day NOP review period will be incorporated, as appropriate, into the documents. Active participation from agencies, decision-makers, other stakeholders, and the public will help ensure that the PEIR is adequate, objective, and useful.

A. SCOPING MEETING

MINUTES
Scoping Meeting for the Program Environmental Impact (EIR) for the 2004 Regional Transportation Plan (RTP)
September 16, 2003
4:00-6:00

THE FOLLOWING MINUTES ARE A SUMMARY OF THE SCOPING MEETING. AUDIOCASSETTE TAPES OF THE ACTUAL MEETING ARE AVAILABLE FOR LISTENING IN SCAG'S OFFICE.

1.0 CALL TO ORDER

Sylvia Patsaouras, Manger of the Environmental Planning Section, welcomed attendees and called the meeting to order at 4:00 PM.

2.0 PRESENTATION

SCAG staff, including Sylvia Patsaouras, Naresh Amatya, Brett Sears, Jennifer Merrick, and Ted Harris presented a summary of the 2004 RTP and the proposed scope and content of the Program EIR. The presentation is available on the SCAG website at http://www.scag.ca.gov/peir/peir_scopemtg.pdf

3.0 PUBLIC COMMENT PERIOD

No comments were received from the public.

7.2 RESPONSES TO NOTICE OF PREPARATION

NOTICE OF PREPARATION

TO: **Interested Agencies and Individuals**

SUBJECT: **NOTICE OF PREPARATION OF A PROGRAM ENVIRONMENTAL IMPACT REPORT (PEIR) FOR THE 2004 REGIONAL TRANSPORTATION PLAN (RTP)**

DATE: **JUNE 9, 2003**

WRCOG No longer does EIR's OR IGR's

LEAD AGENCY:
Southern California Association
of Governments (SCAG)
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

The Southern California Association of Governments, as Lead Agency, will prepare a Program Environmental Impact Report (PEIR) in accordance with the California Environmental Quality Act (CEQA) for the 2004 Regional Transportation Plan (RTP).

The purpose of this Notice of Preparation (NOP) is to help seek all relevant comments pertaining to the scope and content of the environmental information that will be evaluated in the PEIR. The project location, description, and the expected scope of environmental analysis are contained in the materials below.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date, but **not later than 30 days** after receipt of this notice.

Please send your response to Ted Harris at harrist@scag.ca.gov or at the address shown above or visit our website at http://www.scag.ca.gov. Please include a return address and the name of a contact person in your agency, if appropriate. Please send your comment electronically if feasible.

Ted Harris
Regional Environmental Planner
(213) 236-1916
harrist@scag.ca.gov

Attachments: Location and Background, Project Description, and Scope of Environmental Analysis

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

From: "John Whitman" <jwhitman@cityofalisoviejo.com>
To: <harrist@scag.ca.gov>
Date: 6/13/03 1:44PM
Subject: Comments on Notice of Preparation of PIER for 2004 RTP

The scope and contents of the environmental information appear to be adequate.

The City of Aliso Viejo wants to review and comment on the PIER when it is available. Please send a copy to

City of Aliso Viejo

12 Journey

Aliso Viejo, CA 92656

Attn: John Whitman

City Engineer

jwhitman@cityofalisoviejo.com

CC: <dnorman@cityofalisoviejo.com>

Mr. Ted Harris

my name is Mary Harris
my mailing address is
P.O. Box 1413 1000 oaks
California 91358. And
I'm writing to say that
I Appreciate you sending
Me the notice in the
Mail, thank you. Anyway
I want to put my input
into this plan. Number (1)
Public Transportation does
not Affect Cequa
Guidelines, As far as
the Environmental Impacts
are Concerned title 14

Sections 15082(A) 15103 and 15375. And I personally feel as a disabled citizen that is public transit dependent that we could have had a quality transit systems if every city including Los angeles and every where could have prepaired into the future, our whole Southern California area could have been better. Now we have pure gridlock on our freeways from 4:30 in the morning

until 9:30 and 10:00
at night And we
Could have Had Light
Rail from 1000 oaks
to Los Angeles and Back
But its too Late Now
And I Still think we
Could Have Light Rail
Like Sacramento, And
we need to tackle
this issue Pronto its
Important, Lets Look
at this As a Big Puzzle.
if you would Like to
Have Me Come to one
of your Meetings in
Ventura County Im

More than Happy to do
So. Call Me at (805) 379
9454.

Now Lets Tackle another
issue Called Housing
issues.
Now As for the Subject
of Housing this is Something
that Could Have Been done
in a Very Respectful And
tasteful Way Had our
Scag and our Local Cities
Planned accordingly Before
Cities & Counties were Came
into Being And we Could
Had Affordable Housing
for people who Really
Needed it and

Developers Could Have
Built Mixed use
Housing And it Could
Have fit Nicely into
City & Counties General
plans, But now its to
Late, our City is Now
at Build out So we
don't Have any Land
Left. And other Cities
Are Going through this,
And I'm definetley for
Affordle Housing, And
We Have a Housing
Crisis in ALL of our
Southern California
Region and People and
Jobs are Leaving

due to High Cost of Housing And especially when Company's Are Leaving. So Here again Lies a Big problem why aren't we tackling the Problem instead of just talking. We Need to deal with issues at their Route.

As far as Cequa and Environmental Impacts I dont Believe Housing Should Affect that. We Have to Many Nimby's around Not Wanting anything So thats

why things are so bad
And with Joan passing
that didn't Help. So
these are My personal
feelings. ~~So~~ feel free
to Keep in touch with
Me.

Sincerely
Mary Harris
1000 Oakland California

From: "Tom Danna" <TDanna@ci.ontario.ca.us>
To: <harrist@scag.ca.gov>
Date: 6/17/03 9:55AM
Subject: 2004 RTP NOP

Ted,

Received your June 9, 2003 NOP for the 2004 RTP PEIR. I do not have any comments at this point in time. I will forward the notice to our planning staff so that they can review it and comment as they see fit. Please send all future correspondence to the following persons.

Tom Danna, Traffic/Transportation Manager
tdanna@ci.ontario.ca.us

Jerry Blum, Planning Director
jblum@ci.ontario.ca.us

Tom Danna, T.E.
Traffic/Transportation Manager
909-395-2387

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY

METROLINK

June 19, 2003

Ted Harris
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

RE: Notice of Preparation of a Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP)

Dear Mr. Harris:

The purpose of this letter is to highlight issues that need to be addressed in several areas associated with the Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP). Our comments are based upon the Notice of Preparation issued by the Southern California Association of Governments (SCAG) on June 9, 2003.

The Southern California Regional Rail Authority (SCRRA) is a California joint powers authority that is the operator of Metrolink commuter rail service and, acting for our member agencies, operates and maintains railroad right-of-way in the six-county area utilized by our commuter rail service, Amtrak Pacific Surfliner and long distance service and Union Pacific and Burlington Northern Santa Fe freight service. Our five member agencies own the rights necessary to operate commuter rail on existing rights-of-way. As a procedural matter, we draw your attention to the mandatory consultation provisions of State CEQA Guidelines Section 15086, which indicates, among its other relevant requirements, that SCRRA and our member agencies are covered by the mandatory consultation requirements of this section. In addition, the SCRRA and our member agencies could be held responsible for providing many of the passenger rail improvements proposed in the RTP are therefore responsible agencies for purposes of CEQA.

The NOP suggests that each of the proposed Alternatives will include a wide range of projects including, but not limited to, freight rail, high-speed passenger rail, and passenger rail construction. Since each of these rail elements will significantly impact the SCRRA in its future operations and its ability to grow to meet projected demand, we request that you coordinate with SCRRA staff in the development of the Alternatives and in the preparation of the PEIR.

Should you have any questions, please call me at (213) 452-0273 or Steve Lantz at (213) 452-0207.

Sincerely,

DAVID SOLOW
Chief Executive Officer

Cc: SCRRA Board
SCRRA Member Agency Executive Directors
SCRRA TAC

From: kranser@cox.net
To: <harrist@scag.ca.gov>
Date: 6/21/03 2:16PM
Subject: Notice of Preparation of a PEIR for the 2004 RTP

The following comments are provided regarding the Transportation (Aviation) portion of the NOP:

1. If the RTP PEIR includes any estimates of airport capacity shortfall or economic loss attributable to capacity shortfall, the PEIR should first consider the potential increase in capacity at each of the existing regional airports attributable to technology and procedural improvements. Consider that existing politically derived limits on passenger service are not physical limitations and are subject to change before the 2030 planning horizon is reached.

For example, See the FAA Airport 2001 Executive Summary 06/06/01

http://www.faa.gov/events/benchmarks/DOWNLOAD/doc/01-ExecSummary.doc

The benchmark study states that "Technology and procedural improvements are expected to improve the Los Angeles [LAX] capacity benchmark by 11% (165-167 flights per hour) over the next 10 years, while the adverse weather capacity benchmark will increase by 4% (132-133 flights per hour)."

2. If the RTP PEIR makes any estimates of airport capacity shortfall or economic loss attributable to capacity shortfall, the PEIR should first consider that the Director of Los Angeles World Airports reported at the January 16, 2003 SCAG Aviation Task Force meeting that the existing runways at LAX have a capacity to handle 89 million annual passengers, MAP. If it is assumed that there will be a regional shortfall in capacity, consider the economic cost of restricting LAX to 78 MAP, a lower level of passenger service, for the next 27 years.

3. Identify any other planning agency that has or is attempting to forecast aviation demand out to 2030.

Leonard Kranser, Editor
El Toro Info Site
75 Monarch Bay Drive
Dana Point CA 92629

6/23/03

Ted Harris
Regional Environmental Planner
Southern California Association of Governments (SCAG)

818 West Seventh Street, 12th Floor Resources

Los Angeles, CA 900017-3435

Re: Notice of Preparation /2004 Regional Transportation Plan (RTP)

Dear Mr. Harris

As a community based environmental organization the Citizens to Preserve the Ojai is encouraged to learn about the development of a much-needed approach to planning that integrates transportation, land-use and the environment. We have used a similar approach in the planning process in our small town for the past 20 years. Although we have been able to maintained a population of approx 8,000 people over the last 10 years we have not been able to maintain the integrity of our environmental resources due to poor regional planning.

In the past several years we have participated in many public hearings regarding "community growth projections". Projections on future growth and needs upon which many projects are based and in part approved come from various state agencies including SCAG. However at none of the public hearings was any public official able to define the nature of the connection between needs and available community resources. In many cases the planner simply fell into a philosophical discourse on the old saw "you can't stop growth". Environmental Resources such as air and water quality and waste disposal are finite and are exhaustible.

It therefore seems to us that as environmental resources are finite for each specific area that planning should be based on the number of people that the resources for a given area can support. This is not only good environmental science it is the very essence of sustainability, and it raises the spectra of the necessity to set population limits, so that resources can be preserved. Population limits politically are not a popular issue, but planners can help by providing data and information so that decision makers are clear on what environmental population limits are.

To give one small example, as you know Ventura County is classified as a Severe Non-Attainment Area for both Federal and State Clean Air Standards for ozone and

particulates, and the citizens of the Ojai Valley breath the worst air in the County as computer modeling and site sensor data clearly show that ozone exceedance plumes both start and end in the Ojai Valley. According to *Health Indicators in Ventura County* report from the County Public Health Department dated April 2003 asthma rates have increased in children 160% between 1980 and 1994. There can be no doubt that Ventura County has exceeded its Air Quality resources, yet County and City planners continue to propose ever more resource intensive projects. Although this is a local issue, regionally this scenario is being repeated again and again.

The local APCD has a compliance program based on the "growth control" ordinances of the ten cities in the county, however 3 cities have not renewed, and several others as part of their General Plan Updates based on State Department of Finance "Growth Projections" are considering non-renewal of their growth control ordinances. The Air Quality Compliance program has become merely a tool to perpetuate a County Agency; current efforts cannot improve air quality, but will sustain government-planning jobs.

Future planning should be based on available community resources, scientific data and sustainability not on simple arithmetic projections based on a never-ending supply of resources. When communities exceed their available environmental and infrastructual resources they take some one else's clean air and water and quality of life.

Sincerely

Ivor F Benci-Woodward
Citizens to Preserve the Ojai

JOHN WAYNE AIRPORT
Orange County, California

Alan L. Murphy
Airport Director

June 24, 2003

Ted Harris
Regional Environmental Planner
Southern California Association of Governments
818 West Seventh Street
12th Floor
Los Angeles, California 90017-3435

Dear Mr. Harris:

Thank you for the correspondence regarding comments pertaining to the preparation of a Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP).

At this time, staff at John Wayne Airport does not have any comments or input into the PEIR for the 2004 Regional Transportation Plan; however, it would be very much appreciated if you could forward the PEIR for the 2004 RTP when it goes out for public comment.

Thank you for taking the time to seek our input.

Sincerely,

L. G. Serafini, Deputy Airport Director
Facilities, John Wayne Airport

LGS:cm

3160 Airway Avenue
Costa Mesa, CA
92626-4608
949.252.5171
949.252.5178 fax
www.ocair.com

From: Don Harvey <harveydonw@juno.com>
To: <harrist@scag.ca.gov>
Date: 6/24/03 9:26AM
Subject: Comments on NOP dtd 6/9/03 by SCAG for a PEIR for the 2004 RTP

Southern California Association of Governments (SCAG)
VIA E-MAIL

24 June 2003

Don Harvey, JD, PhD
Executive Director
Orange County Bicycle Coalition (OCBC)
630 S. Glassell, Suite 202B
Orange, CA 92866
(714) 288-9130
harveydonw@juno.com (no web access or attachments capability)

1. INTRODUCTION

The Orange County Bicycle Coalition (OCBC), a California public benefit corporation, is explicitly authorized to speak for about 2000 Orange County bicyclists, including our members and members of member clubs. Beyond that, we try to speak for all bicyclists, including the poor, the elderly, and children, and for the bicycle industry. OCBC has been in continuous operation, in the same building, since 1991.

2. COMMENTS

Bicycle transportation must be included in the subject environmental documentation. Bicycle transportation has the following advantageous features:
1) It provides access to all homes, businesses and workplaces.
2) It contributes to neither pollution nor congestion.
3) Its costs (both public and private) are low.
These features require its consideration.

Sincerely,

Don Harvey, JD, PhD
Executive Director
OCBC

CC: <brian@briandesousa.com>, <ken.mcguire@dot.ca.gov>, <bob.joseph@dot.ca.gov>, <jferrera@bth.ca.gov>, <rockkendall@msn.com>, <momara@dot.ca.gov>, <kentstrum@aol.com>

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92009-4213

In Reply Refer To:
FWS-LA-3579.1

JUN 25 2003

Ted Harris
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, California 90017-3435

Re: Notice of Preparation of a Program Environmental Impact Report for the 2004 Regional Transportation Plan, California.

Dear Mr. Harris:

We have reviewed the above referenced Notice of Preparation (NOP) for a Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan in the Counties of Ventura, Los Angeles, Imperial, Riverside, San Bernardino, and Orange, California. This NOP was received on June 13, 2003. The proposed project involves identifying potential transportation solutions to existing and anticipated regional transportation problems.

We offer the following comments and recommendations regarding project-associated biological impacts based on our review of the NOP and our knowledge of declining habitat types and species in southern California. We provide these comments in keeping with our agency's mission to work "with others to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people." Specifically, we administer the Endangered Species Act (Act) of 1973, as amended. We also provide comments on public notices issued for a Federal permit or license affecting the Nation's waters pursuant to the Clean Water Act.

To facilitate the evaluation of the proposed project from the standpoint of fish and wildlife protection, we request that the PEIR contain the following specific information:

1. A description of the environment in the vicinity of the project from both local and regional perspectives, including aerial photographs for each component of the proposed project, with the project site and alternatives outlined.

2. A complete discussion of the purpose and need for each project component and their alternatives.

3. A complete description of the proposed project, including the limits of development, grading, fuel modification, and maintenance zones.

4. Quantitative and qualitative assessments of the biological resources and habitat types that will be impacted by the proposed project and its alternatives. An assessment of direct, indirect, and cumulative project impacts to fish and wildlife associated habitats, including growth-accommodating effects of the project (e.g., increased population, increased development, increased traffic). All facets of the project (e.g., construction, implementation, operation, and maintenance) should be included in this assessment. Proposed developments in the surrounding area should be addressed in the analysis of cumulative impacts.

   This assessment should include a list of Federal candidate, proposed, or listed species; State-listed species; and locally sensitive species that are on or near the project site, including a detailed discussion of these species and information pertaining to their local status and distribution. We are particularly interested in any and all information and data pertaining to potential impacts to populations of federally listed species.

   The analysis of impacts to biological resources and habitat types should include detailed maps and tables summarizing specific acreages and locations of all habitat types, as well as the number and distribution of all Federal candidate, proposed, or listed species; State-listed species; and locally sensitive species, on or near the project site that may be affected by the proposed project or project alternatives.

5. A detailed discussion of measures to be taken to avoid, minimize, and offset impacts to biological resources.

6. A detailed analysis of impacts of the proposed project on the movement of wildlife and measures proposed to avoid, minimize, and offset impacts to wildlife movement.

7. An assessment of potential impacts to wetlands and jurisdictional waters of the United States. Section 404 of the Clean Water Act prohibits the unauthorized discharge of dredged or fill material into such waters, including wetlands. This section also provides that the U.S. Army Corps of Engineers (Corps) may issue permits for discharges of dredged or fill material into jurisdictional waters and wetlands. Potential areas of Corps jurisdiction should be evaluated and wetlands should be delineated using the methodology set forth in the Corps' Wetland Delineation Manual (Environmental Laboratory 1987). The PEIR should disclose all impacts to jurisdictional waters and wetlands, and proposed measures to be taken to avoid and minimize impacts, and mitigate unavoidable impacts.

8. An evaluation of consistency with and/or impacts of the proposed project on the development and implementation of updated zoning restrictions and regional conservation plans in the area, including Central/Coastal Orange County Natural

Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP), Southern Orange County NCCP/HCP, western Riverside Multiple Species HCP, and the Special Area Management Plans developed by the U.S. Army Corps of Engineers in the area.

Past comment letters from the Service on the draft EIRs for the 1998 and 2001 Regional Transportation Plans are attached for your reference. These letters requested more detail regarding anticipated impacts to sensitive habitat types and species and more detail regarding proposed avoidance, minimization, and mitigation measures, including an explanation of what measures would be necessary to reduce impacts of the proposed projects to a less than significant level. In addition, the Service requested that the RTP be updated to be consistent with the conservation goals and reserve designs presented in applicable regional conservation plans.

In general we support the alternative in the NOP that focuses on more efficiently utilizing the existing transportation infrastructure rather than the alternative that focuses on improving and expanding infrastructure to utilize undeveloped land on the outer edges of the urbanized area. The approach that more efficiently utilizes existing infrastructure should limit impacts to remaining habitat, habitat connectivity, and sensitive plant and animal species.

We appreciate the opportunity to comment on the referenced NOP. Should you have any questions pertaining to these comments, please contact Jonathan Snyder of my staff at (760) 431-9440.

Sincerely,

For Karen A. Goebel
Assistant Field Supervisor

attachments

United States Department of the Interior
Fish and Wildlife Service
Ecological Services
Carlsbad Fish and Wildlife Office
2730 Loker Avenue West
Carlsbad, California 92008

In reply refer to: 11430-2001-1477.1

MAR 15 2001

Gilberto Ruiz
Senior Planner
Southern California Association of Governments
818 W. 7th Street, 12th Floor
Los Angeles, California 90017

Re: Southern California Association of Governments Draft 2001 Regional Transportation Plan and Regional Transportation Plan Update Program Environmental Impact Report

Dear Mr. Ruiz:

The U.S. Fish and Wildlife Service (Service) has reviewed the Draft 2001 Regional Transportation Plan (DRTP) and Draft 2001 RTP Update Program Environmental Impact Report (DPEIR). These comments are based on our responsibility for the administration of the Endangered Species Act of 1973, and other authorities that direct the Department of the Interior's concern for plants, fish, wildlife, and other environmental issues. Our agency provides comments on public notices issued for Federal permits or licenses affecting the Nation's waters, in particular, permits issued pursuant to the Clean Water Act and Rivers and Harbors Act. The Service is also a signatory of a Memorandum of Understanding (MOU): *National Environmental Policy Act and Clean Water Act Section 404 Integration Process for Surface Transportation Projects in Arizona, California, and Nevada*, that commits the signatories to integrating the National Environmental Policy Act and section 404 of the Clean Water Act during the transportation planning, programming, and implementation stages. The MOU commits the signatories to improving interagency cooperation and consultation at all levels of government.

The Service recognizes the need to address transportation issues within the Southern California Association of Governments' (SCAG) six county planning area and supports the development of goals, objectives, and policies that will guide future solutions. However, the Service is concerned that neither document outlines goals, objectives, and policies that adequately balance transportation needs with the need to ensure the long-term preservation of the region's biological diversity, including federally listed species, other sensitive species, aquatic resources, and native habitats. One SCAG Regional Goal includes ensuring that "transportation investments. . . protect the environment . . ." (DPEIR, page PD-7) and Transportation Planning Policy #2 (DRTP, page 15) states that transportation investments shall mitigate environmental impacts to an "acceptable" level. However, in the DPEIR (Table ES-1, Summary of Environmental Impacts and Mitigation Measures, pages ES-22 to ES-28), impacts are considered "significant" for

project-caused siltation, loss of habitat, effects to special status species, and wildlife movement even after mitigation. Further, we are concerned that the DPEIR as a "first tier" document does not provide necessary information and analysis to support future environmental documentation for individual projects that may incorporate this document by reference.

The Service recognizes that expansion of the existing transportation system may be required and that it is appropriate for the DRTP to identity transportation needs between urban centers. However, some projects depicted in the 2025 Regionally Significant Baseline Projects (DRTP Exhibit 5.3) and 2025 Draft Plan Highway and Corridor Projects (DRTP Exhibit 5.5) would result in significant impacts to biological resources. Several of the corridors noted in the 2025 baseline are in a planning phase and do not have a final alignment. For example, the alignment shown as a 2025 baseline project for a toll road in southern Orange County in Exhibit 5.3 is only one of a number of alternatives currently being studied and considered. The Service has voiced concerns regarding this particular alignment's affect on a number of federally listed species, including the endangered Pacific pocket mouse (*Perognathus longimembris pacificus*) and arroyo toad (*Bufo californicus*), and the threatened coastal California gnatcatcher (*Polioptila californica californica*). Inclusion of specific alignments in the DRTP, as well as other actions that have not undergone a thorough alternatives analysis to identify the least environmental damaging practicable alternative, is premature and may artificially constrain the future range of alternatives.

We recommend that the Community and Environmental Transportation Acceptability Process (CETAP) quantitatively evaluate the proposed Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) and the general plan revisions to incorporate potential land use constraints into its traffic models. Those models then would produce more informative data for use during the project planning phases. Without incorporating the MSHCP and general plan updates such as important zoning changes or land use allocations into traffic models, accurate assessment of traffic needs for CETAP will not be reflected.

Other corridors with alignments to be determined depicted in Exhibit 5.5 in Orange, Riverside, and San Bernardino counties would destroy and fragment biologically sensitive open space areas and core habitat reserves. The destruction and fragmentation of habitat could imperil the continued existence of sensitive species that have small populations and/or limited dispersal capabilities. The DPEIR does not contain sufficient information to adequately identify potential project related impacts to sensitive habitat types and federally listed species. In the Biological Resources section, federally listed and proposed species, and their designated or proposed critical habitats are not adequately discussed. Moreover, there are no maps of sensitive species or habitat locations in relation to proposed project locations.

Table BR-8 of the DPEIR estimates potential displacement of over 300 miles of natural vegetation with implementation of the 2001 RTP Update, including over 20 miles of riparian vegetation. Riparian vegetation is a particularly sensitive habitat within southern California due to its natural biological diversity and increasing scarcity owing to development. This vegetation provides habitat for a large number of federally listed species, including the endangered least

Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and arroyo toad. These documents identify impacts to riparian habitats and to other sensitive aquatic resources. The documents should emphasize avoidance measures and incorporate the 404 (b)(1) guidelines for alternatives analysis to determine the least environmentally damaging practicable alternative. Consideration should be given to landscape-level planning efforts for aquatic resources such as the Riverside County Special Area Managements Plans. Although some individual projects may have "less than significant impact" and may qualify for an Army Corps of Engineers nationwide permit, the DRTP and DPEIR should summarize wetland impacts by watershed and identify appropriate mitigation measures to offset the cumulative effects of the proposed projects on wetland functions. Wetland mitigation for unavoidable impacts should follow the national policy of "no net loss" of acreage and/or function and values. Establishment of wetland mitigation banks that contribute to increasing wetland functions within affected watersheds should be considered for those projects with limited impacts and where onsite mitigation would not be appropriate.

Over 250 miles of chaparral and scrub habitats could be displaced with implementation of the 2001 RTP update. Chaparral and scrub vegetation (as defined within the DPEIR) are vegetation communities that provide habitat for a suite of federally listed species including the endangered Stephens' and San Bernardino kangaroo rats (*Dipodomys stephensi* and *D. merriami parvus*), and Quino checkerspot butterfly (*Euphydryas editha quino*), and threatened coastal California gnatcatcher. In addition, the proposed Magnetic Levitation (MAGLEV) intra-regional high-speed rail system would affect over another 100 miles of natural vegetation. Table BR-8, however, does not break these impacts down by habitat type.

Given the type of regional analysis within these documents that was based essentially on only a single biological data source (California Natural Diversity Data Base, CNDDB), it is difficult to assess the biological impacts associated with the hundreds of individual projects represented. Appendix K of the DRTP is over 200 pages of current or proposed projects. While the CNDDB is a valuable information resource, our concern is that individual project related impacts may be underestimated given the limited data sources used for this analysis. These projects range from "smart street" improvements that may have no biological impact, to maintenance and operations that may have minor impacts to areas adjacent to existing roadways, to major freeway or tollway construction through currently undeveloped areas that will result in extensive biological impacts from loss of habitat and connectivity. We are encouraged to see that mitigation measures such as, replanting disturbed areas with native vegetation, avoiding sensitive wetland and upland habitats, and attempting to time construction projects to avoid the most sensitive portions of species' life cycles are proposed. However, such measures, even including on- and off-site habitat mitigation, may not adequately address adverse affects to sensitive species and habitats. Programs noted in the DRTP such as the "Liveable Communities" concept and those strategies that maintain and optimize the existing transportation system are supported by the Service. We suggest an emphasis be placed on avoidance and minimization of impacts to the maximum extent feasible by examining a range of alternatives including the "Livable Communities" concept.

In summary, the Service does not concur with the goals, objectives, and policies of the DRTP based on the lack of consideration given to regional concerns for biological issues in planning future transportation projects, and the inclusion of projects that have the potential for significant biological resource impacts without undergoing sufficient alternatives analysis. The DPEIR and DRTP do not provide sufficient baseline information to serve as a "first tier" document, clearly define project related impacts, adequately address alternatives under section 404 (b)(1) guidelines, nor identify sufficient mitigation measures to support the conclusion of "less than significant impacts" for biological and wetland resources. We recommend that the above issues be addressed in a revised draft of both the DRTP and DPEIR.

If you have questions regarding this letter, please contact Doreen Stadtlander or Jill Terp of my staff at (760) 431-9440.

Sincerely,

Jeff Newman
Acting Assistant Field Supervisor

cc: CDFG, Region 5, San Diego, CA (attn: C. Raysbrook)
CDFG, Region 6, Chino, CA (attn: K. Taucher)
ACOE, Los Angeles, CA (attn: F. Tabatabai)
EPA, San Francisco, CA (attn: M. Butterwick)
FHWA, Los Angeles, CA (attn: S. Stephens)
FHWA, San Francisco, CA (attn: D. Harris)

FILE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Field Office
2730 Loker Avenue West
Carlsbad, California 92008

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6 mar 98
3/6/98

MAR 6 1998

Viviane Doche-Boulos
Manager, Forecasting and MEIR
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, California 90017-3435

Re: Draft 1998 Regional Transportation Plan and Draft Master Environmental Impact Report, Imperial, Los Angeles, Orange, Riverside, San Bernadino, and Ventura Counties

Dear Ms. Doche-Boulos:

The U.S. Fish and Wildlife Service (Service) has reviewed the draft 1998 Regional Transportation Plan (dRTP) and Draft Master Environmental Impact Report (dMEIR). Our comments are based on the Service's responsibility for the administration of the Endangered Species Act of 1973 and other authorities that direct the Department of the Interior's concern for fish, plants, wildlife, and other environmental issues. Our agency provides comments on public notices issued for Federal permits or licenses affecting the Nation's waters, in particular, permits issued pursuant to the Clean Water Act and Rivers and Harbors Act. The Service is also a signatory of a Memorandum of Understanding (MOU): *National Environmental Policy Act and Clean Water Act Section 404 Integration Process for Surface Transportation Projects in Arizona, California, and Nevada*, that commits the signatories to integrating the National Environmental Policy Act and section 404 of the Clean Water Act in the transportation planning, programming, and implementation stages. The MOU commits the signatories to improving interagency cooperation and consultation at all levels of government.

The Service recognizes the need to address transportation issues within the six county planning area and supports the development of goals, objectives, and policies that will guide future solutions. However, the Service is concerned that the dRTP does not clearly identify goals, objectives, and policies that guide future transportation actions to consider the need for balancing transportation planning efforts with the need to ensure the long-term preservation of the region's biological diversity, including federally listed species, other sensitive species, and native habitats. We are also concerned that the dMEIR as a "first tier" document does not provide the necessary information and analysis to support future environmental documentation for individual projects that may incorporate, by reference, this "first tier" document.

Programs identified in the dRTP such as the "Livable Communities" concept, and those strategies that maintain and optimize the existing transportation system are supported by the Service. The Service recognizes that expansion of the existing transportation system may be

The summary table in Chapter 11 is incomplete for biological resources and does not appear to carry forward potentially significant impacts indicated in Appendix 1b "Project Level Analysis". The dMEIR does not provide text to discuss or summarize the types of projects (i.e. new roadways versus expanding existing roadways) or the expected levels of significance associated with these various project types.

The dMEIR needs to identify mitigation measures to reduce the level of biological resource and wetland impacts to a level of "less than significant." An emphasis should be placed on avoidance and minimization of impacts to the maximum extent feasible by examining a range of alternatives including the "Livable Communities" concept. Mitigation should be commensurate with the type, location, and acreage of habitat to be impacted. Mitigation site(s) should contain adequate acreage of necessary habitat types to be preserved, enhanced, and/or created to off-set project impacts. In addition to the types of habitat and location of the mitigation site(s), habitat quality should be evaluated so that the biological values, including sensitive species, impacted by the action are to the maximum extent possible comparable to those areas to be preserved and enhanced as mitigation. If offsite mitigation is appropriate, selection of suitable areas should contribute to regional conservation planning efforts. To offset the cumulative and growth enabling impacts of implementing a regional transportation plan, the dMEIR needs to identify mechanisms to augment existing preserved areas and contribute to future region wide conservation planning efforts prior to project impacts. These measures could include land acquisition, conservation banking, habitat restoration, management agreements, transfer of development rights, and fee collection. Sources of funding should be identified to implement these mitigation strategies.

Several projects identified in the dMEIR would have significant impacts to aquatic resources. The dMEIR should emphasize avoidance measures and incorporate the 404(b)(1) guidelines for alternatives analysis to determine the least environmentally damaging practicable alternative. Although some individual projects may have "less than significant impacts" and may qualify for Army Corps of Engineers nationwide permits, the dMEIR should summarize wetland impacts by watershed and identify appropriate mitigation measure to offset the cumulative effects of the proposed projects on wetland functions. Wetland mitigation for unavoidable impacts should follow the national policy of "no net loss" of acreage and/or function and values. Establishment of wetland mitigation banks that contribute to increasing wetland functions within affected watersheds should be considered for those projects with limited impacts and where onsite mitigation would not be appropriate.

In summary, the Service does not concur with the goals, objectives, and policies of the dRTP based on the lack of consideration given to regional concerns for biological issues in planning future transportation projects, and the inclusion of projects that have the potential for significant biological resource impacts without undergoing sufficient alternatives analysis. The dMEIR does not provide sufficient baseline information to serve as a "first tier" document, clearly define project related impacts, adequately address alternatives under section 404(b)(1) guidelines, nor

identify sufficient mitigation measures to support the conclusion of "less than significant impacts" for biological and wetland resources. We recommend that the above issues be addressed in a revised draft of both the dRTP and dMEIR.

In an effort to facilitate early coordination between the Service and the Southern California Association of Governments (SCAG), an Intergovernmental Personnel Action was agreed to by the Service and SCAG, whereby, Service representative, Dr. John Bradley, would be "on loan" to assist SCAG in preparation of the dMEIR and, specifically, to identify mitigation measures early in the planning process. The Service believes Dr. Bradley has the expertise to assist you in addressing the concerns raised in this letter. The Service appreciates the opportunity to formally comment on the dRTP and dMEIR and looks forward to continued coordination on the regional transportation planning process. If you have any questions regarding this letter, please contact Doreen Stadtlander of my staff at (760) 431-9440.

Sincerely,

Elizabeth H. Stevens
Acting Field Supervisor

1-6-98-TA-142

cc: CDFG, San Diego, CA (attn: B. Tippets)
CDFG, Long Beach, CA (attn. C. Taucher)
ACOE, Los Angeles, CA (attn. M. Durham)
EPA, San Francisco, CA (attn: E. Tuden)
FHWA, Los Angeles, CA (attn. S. Stevens)
FHWA, San Francisco, CA (attn. D. Harris)

required and that it is appropriate for the dRTP to identify transportation needs between urban centers. However, a number of projects currently identified in Exhibit 5 of the dRTP would have significant impacts on biological resources. For instance, alignments depicted for the Cajalco Corridor (South Pass, ID#1427) and SR-241 Northern Transportation Corridor (ID # 1417) would fragment biologically sensitive open space areas and core reserves designated under the Riverside County Habitat Conservation Agency's Stephens' kangaroo rat Habitat Conservation Plan. The only alternative depicted for the Foothill Transportation Corridor South (ID # 214) would potentially impact one of only three known populations of the federally listed endangered Pacific pocket mouse (*Perognathus longimembris pacificus*) and fragment open space areas. Inclusion of specific alignments, as well as other actions that have not undergone a thorough alternatives analysis to identify the least environmentally damaging practicable alternative, is premature and may artificially constrain the future range of alternatives.

The dMEIR does not contain sufficient information to adequately identify potential project related impacts to sensitive habitat types and federally listed species. Under Existing Biological Conditions Part II Chapter 6, federally listed and proposed species, and critical habitat that occur within the project planning area are not adequately discussed. Maps of sensitive biological communities and significant wetlands are given place holders in the document but are not available for review. In addition, errors exist within this section regarding habitat affinities for certain species (i.e., Santa Ana River woolly-star and slender-horned spineflower occur in alluvial fan scrub not coastal sage scrub, red-legged frogs occur in riparian systems not in interior wetlands). Vernal pool fairy shrimp and Riverside fairy shrimp are omitted as special status species for vernal pools. Although the dMEIR identifies sensitive plant communities within the Southwest Ecoregion, the document does not identify sensitive plant communities in the Sonoran and Mojave Ecoregions. The dMEIR omits sensitive habitat types such as sage scrub, vernal pools, and alluvial fan scrub that are known to occur within the planning area (see Table 6-1 p. 3.6.3).

It is difficult to ascertain from the dMEIR the biological impacts associated with the multitude of individual projects presented. The potential biological impacts identified in Appendix 1b "Project Level Analysis" are limited. For example, impacts to the California gnatcatcher are identified for a number of projects but no mention of impacts to sage scrub habitat is given. Conversely, potential impacts to habitat are identified for other projects but associated sensitive species that may potentially occur in that community are not listed. Although the Natural Diversity Data Base and Communities Significant Natural Area Inventory are useful locality data, our concern is that this information is not sufficient to identify potential project related impacts including habitat fragmentation issues. The dMEIR refers to findings of a GAP analysis (p. 3.6.6) that identified sensitive habitat/linkage areas. However, the findings were not reported and it is unclear if this information was used in the biological impact assessment. It is our understanding that a number of counties within the planning area have vegetation communities mapped on geographic information systems that should be utilized to assess individual projects, as well as RTP, impacts. Our concern is that individual project related impacts may be underestimated given the limited data sources used for the analysis.

CITY OF ORANGE

COMMUNITY DEVELOPMENT DEPARTMENT www.cityoforange.org FAX (714) 744-7222

ADMINISTRATION (714) 744-7240 | PLANNING DIVISION (714) 744-7220 | BUILDING DIVISION (714) 744-7200

June 26, 2003 #16-03

Mr. Ted Harris
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA. 90017-3435

Re: Notice of Preparation for a Program Environmental Impact Report for the 2004 Regional Transportation Plan

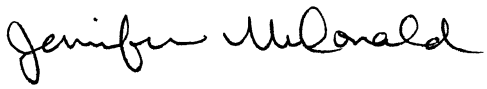
Dear Mr. Harris,

Thank you for transmitting a copy of the Notice of Preparation (NOP) for a Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP) to the City of Orange (City) for review. The RTP is a regional planning document that provides an assessment of overall growth and economic trends for six counties in southern California (including Orange County), and provides a blueprint for a regional multi-modal transportation system. The City has reviewed the NOP and would appreciate consideration of the following comments.

The City of Orange is a member city of the Orange County Council of Governments (OCCOG). As such, the City has evaluated its existing land use plans and considered the likely potential for future growth as part of a sub-regional exercise to develop local population, housing, and employment projections for use by SCAG in the RTP. Because of the fundamental disagreement between SCAG and OCCOG regarding the appropriateness of alternative growth projection methodologies, the City of Orange maintains concerns about the alternatives that will be evaluated in the RTP PEIR. The City requests that the Technically Balanced Growth Projection Modified supported by OCCOG be included in the RTP growth scenarios evaluated in the environmental document, as the population, housing, and employment projections derived using this methodology reflects what the City of Orange, and its fellow jurisdictions in the County, believe is most likely to occur during the planning period.

The City appreciates the opportunity comment on the above-referenced project and looks forward to receiving the Draft EIR for review upon its completion. Please contact me at (714) 744-7220 should you have any questions.

Sincerely,



Jennifer McDonald
Associate Planner/Environmental Review Coordinator
Community Development Department

cc: Anna Pehoushek, Senior Planner
Stan SooHoo, Community Planning Manager

CITY OF LAKE FOREST

Mayor
Richard T. Dixon

Mayor Pro Tem
Peter Herzog

Council Members
Kathryn McCullough
Marcia Rudolph
Helen Wilson

City Manager
Robert C. Dunek

June 27, 2003

Southern California Association of Governments
ATTN: Mr. Ted Harris, Regional Environmental Planner
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

SUBJECT: Notice of Preparation of a Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP)

Dear Mr. Harris:

The City of Lake Forest received your Notice of Preparation of a Program EIR for the 2004 RTP. We have no comments at this time, but look forward to reviewing the Draft EIR when it becomes available. Please send a copy to me at the following address.

City of Lake Forest
Attn: Gayle Ackerman, Director of Development Services
23161 Lake Center Drive, Suite 100
Lake Forest, CA 92630

Sincerely,
CITY OF LAKE FOREST

Gayle Ackerman

Gayle Ackerman, AICP
Director of Development Services

cc File: Interjursidictional (I 2003-06)

DRUG USE IS LIFE ABUSE

23161 Lake Center Drive, Suite 100
Lake Forest, CA 92630
(949) 461-3400
City Hall Fax: (949) 461-3511
Building/Planning/Public Works Fax: (949) 461-3512

From: <PrettySlik@aol.com>
To: <harrist@scag.ca.gov>
Date: 7/1/03 6:07PM
Subject: 2004 RTP

Mr. Harris,
I am a homeowner and resident of Aliso Viejo in Orange County. I have two comments of a high level nature to add to the discussion of the 2004 RTP.

First, it is mandatory that SCAG remove any reference to the long since defeated El Toro commercial airport from you projections. The well informed electorate of Orange County have changed the General Plan of the county to reflect only non-aviation of the former Marine base. Despite Los Angeles World Airports' underhanded attempt to hijack the property for their use, there will be no airport at El Toro.

Second, I urge you to revise your air travel passenger estimates downward to reflect reality. Your recent estimates were vastly over stated by as much as 30%.

Very Sincerely Yours,
Douglas C. Brown
2 Diamondgate
Aliso Viejo, CA 92656
PrettySlik@aol.com

From: <Pattyfine@aol.com>
To: <harrist@scag.ca.gov>
Date: 7/4/03 2:43PM
Subject: SCAG-NOP-2004 RTP PEIR

To: Mr. Ted Harris, harrist@scag.ca.gov

From: Patricia Feiner Arklin, P.O. Box 779, Somis, California 93066, pattyfine@aol.com

Re: Notice of Preparation (NOP) Program Environmental Impact Report (PEIR) for 2004 Regional Transportation Plan

Date July 4, 2003

Dear Mr. Harris:

Below please find a few general comments which I would like to submit in response to the NOP for the above-named PEIR:

With regard to the scope and content of the environmental information, I would request that the analysis be both as broad and as detailed as possible with regard to both cumulative impacts and project-specific impacts. In particular (and, in all cases, both cumulatively and project-specifically), I would like to see thorough analysis of the impacts of the various transportation alternatives on: growth patterns, land use, and growth inducement; wildlife and wildlife habitats (including threats to species and the implications of further breaking-up of contiguous wildlife habitats and corridors); agricultural resources; noise levels (and associated health, quality-of-life and stress-inducing implications of noise from the transportation projects being considered); air quality (with special emphasis on health aspects of diesel and particulate matter); water quality (both freshwater and seawater, including related habitats, through, e.g., storm runoff from roadways and other transportation surfaces and activities); vehicular traffic inducement from new and/or enlarged road projects.

With regard to the alternatives being considered, I hope the alternatives will include consideration of as many bold and ΓÇ£paradign-shiftΓÇ¥ ideas as possible so that the machinery of government transportation and land-use planning has the opportunity to begin to truly reexamine all fundamental policies, many of which are likely by now to be badly outdated. The possibilities are endless, but in any event I would like to see analysis of more balanced transportation systems that are substantially less automobile-dependent than those of today. One specific idea that begs for serious consideration would be smoothe and relatively quiet and pollution-free monorail systems along the center dividers of certain freeway corridors.

Good luck with the RTP and thank you for this opportunity to comment. Please keep me on your notice list for all stages of this, and future, environmental processes.

Sincerely yours,

Patricia Feiner Arkin

From: Barry Griffith <BarryG@ci.palm-springs.ca.us>
To: 'Ted Harris' <harrist@scag.ca.gov>
Date: 7/7/03 3:11PM
Subject: 2003 SCAG PEIR - Palm Springs International Airport

Ted:

Good afternoon. In response to the June 9, 2003 Notice for the 2004 PIER report, the City of Palm Springs has submitted "draft" copies of the 2003 Master Plan Update, Economic Benefit Study and Environmental Assessment Report for the Palm Springs International Airport. Resolution No. 20647 Airport Master Plan Update CS 5.0438 was adopted by the City Council on July 2, 2003 with a few proposed revisions to the "draft" study which are in the process of being corrected. We expect to get the final copies of the Master Plan with corrections soon, and will forward all these documents to your attention so that they can be included in the 2003 SCAG PIER report.

If you have any questions or concerns, please contact us at your earliest convenience. thanks.

<http://www.3dflags.com/assets/XV21AE/gif/2/u/3dflagsdotcom_usa_2faws.gif>
John Barry Griffith
Assistant Director of Aviation
Palm Springs International Airport
3400 E. Tahquitz Canyon Way, OFC
Palm Springs, California 92262
tel 760-318-3803 fax 760-318-3815
BarryG@ci.palm-springs.ca.us <mailto:BarryG@ci.palm-springs.ca.us>

CC: Allen Smoot <AllenS@ci.palm-springs.ca.us>, Doug Evans <DougE@ci.palm-springs.ca.us>

From: Andrea Hricko <ahricko@usc.edu>
To: <harrist@scag.ca.gov>
Date: 7/7/03 5:13PM
Subject: SCAG announcement re PEIR for RTP

Please accept these comments on the Notice of Preparation of a Program Environmental Impact Report for the 2004 Regional Transportation Plan, sent in response to the June 9, 2003 SCAG notice.

Our Southern California Environmental Health Sciences Center investigators, located at USC and UCLA, conduct research and have published their results concerning the health effects of air pollution, particularly mobile sources, on children and other residents. These include respiratory and reproductive health effects. Scientists at the Southern California Particle Center and Supersite are focusing their research and publications on the measurement of particulate matter, particularly ultrafine particles, and health effects of exposure to mobile source pollution. Other scientists around the world have published articles on the respiratory effects of living near or going to school near busy roads and freeways, particularly those with heavy duty truck traffic. We request that these and other relevant research results be considered and analyzed in-depth in the PEIR for the 2004 RTP.

Specifically, we request that the PEIR include discussion and analysis of the following research studies published or underway in California and elsewhere:

1. Links between air pollution and respiratory health effects, such as reduced lung function and exacerbation of asthma, as well as new studies about possible links between air pollution and causation of asthma [e.g., Peters, et al, McConnell, et al., (USC) and their colleagues' results from the 12-community, 10-year Children's Health Study of children in Southern California].
2. The health impacts of living or going to school close to a busy road or freeway (e.g., studies by Brunekreef et al. and others).
3. Traffic volume, proximity to busy roads, and its impact on the reproductive system and on birth weight of babies, (Ritz et al. [UCLA]).
4. Measurement of ultrafine particles near busy freeways in Southern California and the health effects of exposure to ultrafine particles (Zhu et al., Li et al. [UCLA])
5. Environmental justice, including consideration of a new study by the California DHHS (Gunier et al) on the ethnicity of those living very close to freeways in California.

Overall issues of current local importance to goods movement, anticipated increases in air pollution, and recalculation of impacts based on new knowledge include the following, which also need to considered, carefully evaluated and analyzed in the PEIR:

1. The local and regional health effects of exposure to NOx, CO, PM, and other constituents of diesel exhaust exposure (and the pollutants into which they are chemically transformed) from an increase in volume of trucks on Southern California freeways, looking specifically at the local and regional health effects of diesel exhaust exposure from expansion of the 710 Freeway to accommodate 3-4 times as many trucks coming from the Ports by the year 2025.

2. The local and regional transportation-related health impacts of ongoing expansion of the Port of Los Angeles and Port of Long Beach (including ship emissions, truck and train emissions, emissions in the Inland Counties from distribution centers servicing the freight-related transportation needs, emissions related to intermodal facilities, increased regional pollution resulting from emissions at the Ports and from related goods movement, etc.)
3. Revision of the previous estimates of improved air quality that SCAG anticipated would occur from the Alameda Corridor project, since this major public works project has not resulted in the reduction in truck traffic that was previously anticipated.

In addition, I request that the PEIR include discussion and analysis of issues relating to an increase in noise from the possible expansion of the 710 Freeway to accommodate 3-4 times as many trucks by the year 2025 and its impact on residents and school children living or going to school nearby the freeway. Again, there are many scientific articles addressing this issue, looking at health effects and the impacts on learning.

The Southern California Environmental Health Sciences Center, directed by Dr. John Peters at Keck School of Medicine of USC, and the Southern California Particle Center and Supersite, directed by Dr. John Froines at UCLA School of Public Health, are happy to have their Centers provide an air pollution and health effects briefing for those preparing the PEIR in order to guide you to the appropriate scientific literature discussing health impacts from transportation that must be included in the PEIR for the 2004 RTP. I would be happy to coordinate such a briefing with you and other SCAG staff. I will be sending a similar email communication to Mark Griffin.

Thank you for your consideration. Please enter this electronic communication into the official PEIR record. Sincerely, Andrea Hricko

Andrea M. Hricko, MPH
Director, Community Outreach and Education
Southern California Env Health Sciences Ctr &
Children's Environmental Health Center
Assoc Prof of Preventive Medicine
Keck School of Medicine
University of Southern California
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Los Angeles, CA 90033

323-442-3077
323-442-3272 (FAX)

ahricko@usc.edu

July 7, 2003

Mr. Ted Harris
Regional Environmental Planner
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

Building Industry Association of Southern California
1330 South Valley Vista Drive
Diamond Bar, California 91765
909.396.9993
fax: 909.396.1571/Exec. Office
fax: 909.396.9846/BIS/Mbrship
www.biasc.org

Subject: Preparation of the 2004 Regional Transportation Plan PEIR

Dear Mr. Harris:

On behalf of the Building Industry Association of Southern California (BIA/SC) please accept this letter as our comments relative to the scope and content of the environmental information that will be evaluated in the Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP).

BIA/SC represents approximately 1700 member-companies who do business in Los Angeles, Riverside, San Bernardino, Ventura, Orange and Imperial Counties. Our members include home building companies, trade contractors, land-use professionals and others associated with the building industry. The total employee force from BIA/SC member-companies is estimated at 225,000 men and women. BIA/SC is a non-profit trade association with nearly 80 years of history in the Southern California region.

As the Southern California Association of Governments (SCAG) begins the process of planning for the 2004 RTP, we believe it is critical that staff evaluate and include in the PEIR not only the impacts that new growth may create, but also the significant differences between the proposed growth scenarios.

For example, when evaluating the housing necessary for of 6 million additional residents to the region, there are those who contend that this expected growth should be housed within our region's existing transportation routes and structure. However, in order to accommodate such a large number of people in our all ready over-burdened and strained infrastructure system, which includes non-transportation infrastructure systems, significant improvement and enhancements will need to be made.

The impacts on existing communities that would be needed to absorb the estimated 6 million new residents should be evaluated and judged fairly against the ability to properly plan and prepare other areas that do not currently maintain the transportation infrastructure needed to accommodate the housing for 6 million new residents. This data should also included the number of

Antelope Valley Chapter
Baldy View Chapter
Desert Chapter
Greater L.A./Ventura Chapter
Los Angeles County East Chapter
Orange County Chapter
Riverside County Chapter

families and individuals that would experience displacement in order to accommodate the infrastructure enhancements to existing communities in order to properly house and facilitate the movement of current and future residents.

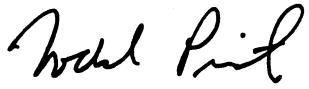
Such development within what are commonly known as "built-out" areas will undoubtedly have enormous impacts on the existing residents of those communities. SCAG should not only consider the traditional areas of concerns when preparing the PEIR for the proposed scenarios, but must also take into account the feasibility to accommodate such as growth and transportation plans in those areas, including the displacement and economic impacts on those residents. Additionally, SCAG must consider the political viability of approving "high density" projects within any given local jurisdiction. While many elected officials herald high-density infill projects, such projects rarely survive on-the-ground scrutiny and local agencies and neighboring residents.

More often than not, it is more palatable for communities to accommodate growth in areas where they can properly plan for the intended consequences from the outset. Whether it is transportation systems or other infrastructure improvements, SCAG should delineate in the PEIR the differences in accommodating growth in existing metropolitan areas in relationship to properly planning for the long-term growth of our region. It is important that our region's infrastructure investment be allocated based on where the projected growth will occur. Future infrastructure monies should be spent where the local communities are being developed.

The 2004 RTP is just a step in the continuation in the growth Southern California, and is not the final phase. This evaluation is critical not only for the 2004 RTP, but for future transportation planning as well.

We look forward to continuing to work with the SCAG's Regional Council and staff as the 2004 RTP is development and implemented.

Sincerely,



Todd Priest
Director of Government Affairs

County of Orange
Planning & Development Services Department

300 N. FLOWER ST.
SANTA ANA, CALIFORNIA

MAILING ADDRESS:
P.O. BOX 4048
SANTA ANA, CA 92702-4048

NCL 03-071

July 7, 2003

Ted Harris
Regional Environmental Planner
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

SUBJECT: NOP of a DPEIR for the 2004 Regional Transportation Plan (RTP)

Dear Mr. Harris:

The above referenced item is a Notice of Preparation (NOP) of a Draft Program Environmental Impact Report (DPEIR) for the Southern California Association of Governments (SCAG). The Regional Transportation Plan (RTP) for Southern California, last updated in April of 2001, provides an assessment of overall growth and economic trends in six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura), and provides a blueprint for a cohesive, balanced, and multi-modal transportation system. The RTP is intended to serve as a catalyst for linking transportation agency investments within the SCAG regions, and it addresses regional goals and is consistent with Federal and State requirements.

The County of Orange has reviewed the NOP and offers the following comments:

FLOOD

1. The DPEIR should identify all Orange County Flood Control District (OCFCD) facilities that could potentially be impacted by the 2004 RTP. Drainage Facility Basemaps that show OCFCD's facilities are available from the County's Central Files (Phone No. (714) 834-3568) located in Room 210 of the Osborne Building at 300 N. Flower Street in Santa Ana.

2. The DPEIR should identify potential project impacts to OCFCD facilities and propose in consultation with the County's Flood Control Division appropriate mitigation measures that will need to be implemented for resolving any adverse project impacts when the RTP is implemented.

3. The DPEIR should identify potential impacts to existing Federal Emergency Management Agency (FEMA) defined floodplains and propose appropriate mitigation measures that will need to be implemented for resolving any adverse project impacts when the Plan is implemented so that the Plan and its projects remain consistent with FEMA criteria.

4. Water quality impacts due to increased urban runoff and construction runoff associated with the newly added impervious surface areas should be identified and appropriately mitigated in consultation with the County's Watershed and Coastal Resources Division.

5. All proposed work within OCFCD's right-of-way will need to be performed only after encroachment permits from the County's Public Property Permits Section have been received.

OPEN SPACE/RECREATION

Regional Recreation Facilities:

6. The DPEIR should identify any impacts to County regional recreation facilities and provide mitigation measures as appropriate. Of concern are any impacts to park operations, safety, aesthetics, infrastructure, flora and fauna.

Class I Off-road Bikeways:

7. The RTP should encourage opportunities for more Class I (paved off-road) bikeways, many people might be willing to ride bicycles if provided with continuous, off-road routes, away from traffic. We suggest emphasizing "bike-friendly" as well as "pedestrian-friendly" neighborhoods and communities.

WATER QUALITY

We recommend the following issues be addressed in the DPEIR:

8. The existing conditions of any potentially impacted Receiving Waters as identified in the Water Quality Control Plans for the Santa Ana or San Diego Basins (Basin Plans), and the corresponding goals and objectives for surface water quality; and

9. Water quality impairments in the downstream receiving waters, as reflected in the 2002 Clean Water Act 303(d) list; and

10. The potential surface water quality impacts of the project including but not limited to: construction activities, long-term runoff impacts of new impervious surfaces, pesticides and fertilizers applied to landscaping, future spills from accidents and/or improper business management of chemicals, as they relate to 1 and 2; and

11. Mitigations for project water quality impacts, which should include:

a. Preparation of a construction Stormwater Pollution Prevention Plan under State National Pollution Discharge Elimination System (NPDES) requirements;

b. Consideration of Post-construction Best Management Practices (BMPs) consistent with the Water Quality Management Plan (WQMP) program in Section 7 and Exhibit 7-II of the 2003 Countywide Drainage Area Management Plan (DAMP). This includes describing commitments to installation and maintenance of site design, source control and treatment control BMPs consistent with the DAMP New Development and Significant Redevelopment Program.

Under the new Municipal Stormwater NPDES permit and in the 2003 DAMP, within the San Diego Region, streets, roads, highways and freeways which create a new paved surface that is 5,000 square feet or greater will be considered priority projects which require appropriately sized treatment control Best Management Practices to be included in the WQMP.

Thank you for the opportunity to respond to the NOP. Please send one complete set of the DPEIR to Charlotte Harryman at the above address when it becomes available. If you have any questions, please contact Ms. Harryman at (714) 834-2522.

Very truly yours,

for Timothy Neely, Manager
Environmental Planning Services Division

ch

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, REGIONAL PLANNING
IGR/CEQA BRANCH
120 SO. SPRING ST.
LOS ANGELES, CA 90012
PHONE: (213) 897-4429
FAX: (213) 897-1337

Flex your power!
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IGR/CEQA No. 030632AL,
The 2004 Regional Transportation Plan (RTP)
Vic. LA/VEN
SCH #: 2003061075

July 8, 2003

Mr. Ted Harris, Regional Environmental Planner
Southern California Association
of Governments (SCAG)
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

Dear Mr. Harris:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the 2004 Regional Transportation Plan (RTP).

It is understood that transportation improvement projects are checked to determine whether such improvements are identified in the RTIP. Among SCAGs many and varied responsibilities are the preparation of RTIP, to demonstrate the RTIP's consistency with the RTP and make a finding of conformity with the applicable State Implementation Plan before federal funds may be expended on transportation projects.

The PEIR, Location and Background description, bullet 4 succinctly, yet sufficiently describes this responsibility. In addition, the fact that air quality is identified among the many impact categories of the PEIR, further solidifies the importance given Air Quality Conformity in the 2004 RTP PEIR.

We look forward to reviewing the RTP PEIR. We expect to receive a copy from the State Clearinghouse when it is completed. However, to expedite the review process, and clarify any misunderstandings, you may send a copy in advance to the undersigned.

If you have any questions, please feel free to contact me at (213) 897-4429 or Alan Lin the project coordinator at (213) 897-8391 and refer to IGR/CEQA No. 030632AL.

Sincerely,

STEPHEN J. BUSWELL
IGR/CEQA Branch Chief

cc: Scott Morgan, State Clearinghouse

Steve Buswell/AL

South Coast
Air Quality Management District
21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

July 8, 2003

Mr. Ted Harris
Southern California Association
of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

Dear Mr. Harris:

Notice of Preparation of a Program Environmental Impact Report for the 2004 Regional Transportation Plan (RTP)

The South Coast Air Quality Management District (AQMD) appreciates the opportunity to comment on the above-mentioned document. The AQMD's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the Draft Environmental Impact Report (EIR).

Air Quality Analysis

The AQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The AQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the AQMD's Subscription Services Department by calling (909) 396-3720.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction and operations should be considered. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, that is, sources that generate or attract vehicular trips should be included in the evaluation. An analysis of all toxic air contaminant impacts due to the decommissioning or use of equipment potentially generating such air pollutants should also be included.

Mitigation Measures

In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures be utilized during project construction and operation to minimize or eliminate significant adverse air quality impacts. To assist the Lead Agency with identifying possible mitigation measures for the project, please refer to Chapter 11 of the AQMD CEQA Air Quality Handbook for sample air quality mitigation measures. Additionally, AQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook contain numerous measures for controlling construction-related emissions that should be considered for use as CEQA mitigation if not otherwise required. Pursuant to state CEQA Guidelines §15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed.

Data Sources

AQMD rules and relevant air quality reports and data are available by calling the AQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the AQMD's World Wide Web Homepage (http://www.aqmd.gov).

The AQMD is willing to work with the Lead Agency to ensure that project-related emissions are accurately identified, categorized, and evaluated. Please call Charles Blankson, Ph.D., Air Quality Specialist, CEQA Section, at (909) 396-3304 if you have any questions regarding this letter.

Sincerely,

Steve Smith

Steve Smith, Ph.D.
Program Supervisor, CEQA Section
Planning, Rule Development and Area Sources

SS:CB:li

ALL030703-01LI
Control Number

DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS – M.S.#40
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July 8, 2003

Mr. Ted Harris
Southern California Association of Governments
818 W. 7th Street, 12th Floor
Los Angeles, CA 90017-3435

Dear Mr. Harris:

Re: *Notice of Preparation for a Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP)*
SCH# 2003061075

Thank you for including the California Department of Transportation (Department), Division of Aeronautics in the environmental review process for the above-referenced project. We have reviewed the Notice of Preparation for a Program Environmental Impact Report, dated June 2003, and offer the following comments relative to airport land use compatibility planning:

1. The project is the update and revision of the RTP and its PEIR for the Southern California Association of Governments (SCAG). SCAG is officially designated by U.S. Department of Transportation and Caltrans as a Council of Governments, a Multi-County Designated Transportation Planning Agency, and the Metropolitan Planning Organization for the southern California Region. The RTP and its PEIR are being developed as a part of an innovative planning process that integrates transportation, land use, and the environment. The process, known as PILUT (Planning for Integrated Land Use and Transportation), will evaluate a range of 2004 RTP/PEIR alternatives. During the initial planning phase, each alternative will be evaluated with a multi-criterion analysis that considers transportation, land use, environmental, economic, and social factors. These factors will be presented to the Regional Council in Summer/Autumn 2003 to inform the selection of the Preferred Alternative. PEIRs can generally be used for the analysis of broad policy issues, such as cumulative and growth-inducing impacts, and for studying a series of projects that may have related impacts. If the PEIR is sufficiently comprehensive, a lead agency may use the PEIR to focus or simplify later environmental review of project-specific applications or as the basis of a tiered EIR.

2. In accordance with the California Environmental Quality Act, Public Resources Code Section 21096, the Department's Airport Land Use Planning Handbook must be utilized as a resource in the preparation of an environmental document for a proposed project within an airport land use compatibility plan. For your reference in your analyses of impacts relative to airport land use compatibility and regional aviation planning, the Handbook can be viewed on-line at http://www.dot.ca.gov/hq/planning/aeronaut/htmlfile/landuse.html. The Handbook is a good resource in integrating air transportation, land use, and the environment, as envisioned by the PILUT process.

3. We recommend that the RTP and its PEIR discuss consistency with the policies and programs of the Department's California Aviation System Plan (CASP). The CASP provides guidance to the Department for fulfilling its mission, vision, and goals within the context of the aviation transportation mode, and its policy element is available on-line at http://www.dot.ca.gov/hq/planning/aeronaut/documents/pol-element02.pdf.

4. The environmental document should be submitted to Airport Land Use Commissions in Imperial, Los Angeles, Orange, Riverside, and Ventura Counties for their review of the RTP and its PEIR. We also recommend that SCAG coordinate its long-term planning process with airport managers to ensure that the assumptions in the proposed RTP/PEIR are consistent with the assumptions and projections in Airport Master Plans. In SCAG's analyses of these assumptions for airport land use compatibility and regional aviation planning, airport access and traffic impacts, airport economic impacts, and cumulative, and growth-inducing impacts should be key planning concepts to be coordinated with local governments.

5. We are looking forward to reviewing the Environmental Impact Report for the proposed Regional Transportation Plan. The need for compatible land uses near airports in California is both a local and a State issue. Along with protecting individuals who reside or work near an airport, the Division of Aeronautics views all public use airports in California as part of the statewide transportation system. This role will no doubt increase as California's population continues to grow and the need for efficient mobility becomes more crucial. We strongly feel that the protection of airports from the encroachment of incompatible land uses is vital to the safety of airport operations, to the well being of communities surrounding aviation facilities, and to California's economic future.

These comments reflect the areas of concern to the Department's Division of Aeronautics with respect to airport-related noise and airport land use/safety compatibility issues. We advise you to contact our District 07 office concerning surface transportation issues.

Thank you for the opportunity to review and comment on this environmental document. If you have any questions, please call me at (916) 654-5253.

Sincerely,

D. Cohen

DAVID COHEN
Aviation Environmental Specialist

c: State Clearinghouse
Imperial County ALUC
Los Angeles County ALUC
Orange County ALUC
Riverside County ALUC
Ventura County ALUC

URBAN DIMENSIONS
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506 Santa Monica Blvd., Ste 223, Santa Monica, CA 90401 310-899-6767 PHONE 310-899-6765 FAX
INFO@URBANDIMENSIONS.NET

July 9, 2003

Via U.S. Mail & Fax to 213-236-1963

Mr. Ted Harris
Regional Environmental Planner
Southern California Association
of Governments
818 West Seventh St., 12th Floor
Los Angeles, CA 90017-3435

Re: Comments on Notice of Preparation of a Program Environmental Impact Report for the 2004 Regional Transportation Plan

Dear Mr. Harris:

This letter is submitted on behalf of the City of El Segundo (City). The City of El Segundo appreciates SCAG's efforts to gather public input on the scope and content of the environmental analysis to be performed for the Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP). We trust SCAG will prepare CEQA documents that provide relevant information to the public in a timely manner prior to the adoption of the RTP. We have reviewed the Notice of Preparation and submit the following comments.

AVIATION ELEMENT

The City fully supports the consensus of the region to decentralize aviation activity in southern California and equitably distribute future air traffic demand to airports throughout region. Indeed, a guiding principle for aviation planning at SCAG is that each county should have both the obligation and the opportunity to meet its own air traffic needs and that principle is reflected in the decentralized aviation system adopted in the 2001 RTP.

1. Restrictions on Federal Funds Limit Range of Alternatives in the PEIR

The City is concerned that SCAG has relinquished local control over aviation planning decisions in the SCAG region and has allowed the federal government to impose federal control by accepting restrictive federal funds with which to conduct regional aviation planning and analysis for the 2004 RTP. In doing so, SCAG appears poised to prepare a CEQA document that fails to comply with CEQA requirements to analyze a full range of alternatives.

SCAG has seriously limited its ability to identify and analyze the full range of aviation resources available in the SCAG region by accepting Federal Aviation Administration Airport

Improvement Program funds that prohibit use for the planning and analysis of a proposed airport at the former MCAS El Toro in Orange County. In order to comply with CEQA, we believe SCAG must find additional funding that it can use to analyze El Toro as part of its overall analysis. Otherwise, the PEIR would fail to offer the full alternatives analysis legally required under CEQA.

2. *Supplemental PEIR Might Be Required*

The fundamental basis for including El Toro in the region's aviation planning effort has not changed since El Toro was included in the adopted 2001 RTP. At that time, the Department of the Navy owned El Toro. The Orange County Board of Supervisors proposed to the Department of the Navy that the County take possession of the facility and operate it as a commercial airport.

Currently, the Department of the Navy still owns El Toro and now the City of Los Angeles has proposed that the Navy lease the facility to the City of Los Angeles for the purpose of operating El Toro as a commercial airport.

In the event that it fails to include any analysis of an airport at El Toro in the PEIR, SCAG must be prepared to fund and conduct a supplemental PEIR restoring El Toro to the airport inventory being analyzed in the aviation element for the 2004 RTP based on the City of Los Angeles' lease proposal and the ongoing lack of consensus regarding the future of the airport at El Toro.

3. Alternatives that Overwhelm Ontario International Airport with Orange County's Demand are Unreasonable

As stated previously, SCAG has eliminated El Toro from the aviation plan resulting in the need to redistribute 30 million annual passenger (MAP) and 1.69 million annual tons (MAT) of cargo that SCAG had projected El Toro would accommodate in the adopted 2001 RTP. For the 2004 RTP, early modeling of an aviation system without El Toro attempts to redirect a substantial amount of Orange County's aviation demand to Ontario, overwhelming the airport with up to 37 MAP and 2.6 MAT of cargo.

SCAG has acknowledged that it is highly unlikely that Ontario International Airport is capable of handling more than 30 MAP with its existing runways. It also is unlikely that a third runway can be added within existing airport boundaries. Furthermore, neither the City of Los Angeles (the airport's owner/operator) nor the City of Ontario has indicated any plan or desire to add a third runway.

Any alternatives that would overwhelm Ontario International Airport with Orange County's aviation demand are unreasonable. The PEIR must identify alternatives that more reasonably and realistically redirect the demand that Orange County has failed to accommodate within its own borders.

4. Identify and Analyze the Impacts of Counties that Fail to Meet Their Own Aviation Demand

The PEIR must identify and analyze appropriate and effective measures to mitigate the negative impacts imposed on other communities by counties that fail to accommodate their own aviation demand.

All counties in the SCAG region generate air passenger and air cargo demand but not all counties are willing or able to accommodate that demand and, therefore, "export" some or all of their aviation demand and its negative impacts to airports in other counties, primarily Los Angeles County.

For example, Ventura County boasts a population of 742,000 making it the 12th most populous county in the state of California. SCAG projects Ventura County's population to increase 26 percent to 951,080 by the year 2025. Yet Ventura County handles only general aviation at its airports in Oxnard, Camarillo and Santa Paula. Ventura exports virtually all of its air passenger and air cargo demand and associated traffic, noise and pollution to other counties in the region.

Orange County currently handles approximately one-third of its annual passenger demand and less than one percent of its annual air cargo demand at the County's only commercial airport, John Wayne Airport. The County exports the overwhelming majority of its aviation demand to airports in other counties, primarily LAX. SCAG projected Orange County's aviation demand to reach 30 MAP by the year 2025. Without an additional commercial airport at El Toro or elsewhere in the county, Orange County's significant aviation demand will be exported out of the county. The 2001 RTP estimated that without a second airport in Orange County an additional 30,000 people in the region – in mostly low-income and minority communities – will suffer the negative impacts of Orange County's aviation demand. This transfer of environmental burden from the mostly white affluent majority of south Orange County to the low-income and minority communities of other counties is an obvious and egregious violation of principles of environmental justice.

In order to implement appropriate and effective measures to mitigate the negative impacts imposed on other communities by counties that fail to accommodate their own aviation demand, SCAG must first:

1. identify and analyze the level of air passenger and air cargo demand generated by each county in the SCAG region,
2. identify where and at what level each county's air passenger and air cargo demand is being met,
3. identify communities that are impacted by another county's aviation demand,
4. identify and analyze the type and level of negative impacts on communities accommodating another county's demand, and

5. identify potential mitigation measures that might be implemented to address these negative impacts, such as the proposed MAGLEV project that links Anaheim and Orange County with Ontario Airport.

5. Identify and Prioritize Infrastructure Projects to Facilitate Implementation of Decentralized Regional Aviation

The region has reached a consensus to develop a decentralized airport system in southern California. SCAG adopted a decentralized aviation system in the 2001 RTP and plans only to "tweak" the aviation scenario for the 2004 RTP leaving the decentralized aviation system in place. And Los Angeles Mayor James Hahn has announced a Master Plan alternative that will constrain LAX to its currently existing capacity ensuring that LAX will be incapable of being the central receiver of future growth in regional aviation demand.

In short, the decision to develop and implement a decentralized regional airport system has already been made. The function of the 2004 RTP planning and analysis processes should be to identify, analyze and prioritize infrastructure projects that facilitate implementation of a decentralized regional aviation system - specifically, those infrastructure projects that provide access to airports in the Inland Empire where there is public and political support for developing Ontario International Airport, March GlobalPort, San Bernardino International Airport and Southern California Logistics Airport to handle a significant share of the region's future air passenger and air cargo demand. Both the proposed MAGLEV project from West Los Angeles to Union Station to Ontario International Airport and the California-Nevada MAGLEV project segment linking Anaheim to Ontario International Airport are examples of such key projects.

Thank you for the opportunity to comment on the Notice of Preparation of a Program Environmental Impact Report for the 2004 Regional Transportation Plan.

Very truly yours,

URBAN DIMENSIONS

NANCY L. PFEIFER

Cc: Jeff Stewart, Assistant City Manager, City of El Segundo
E. Clement Shute, Jr., Shute, Mihaly & Weinberger LLP

From: "Ned Ibrahim" <Ned.Ibrahim@ci.corona.ca.us>
To: <harrist@scag.ca.gov>
Date: 7/9/03 11:04AM
Subject: Comments from Corona on the NOP for Regional TransportationPlan (PEIR)

Dear Mr. Harris,

The City of Corona would like to see that the RTP and PEIR acknowledge the magnitude of the existing and future congestion problem in the SR-91 Corridor between Riverside County and Orange County, and that the RTP include several of the improvements strategies adopted by the Four Corners Group and recently prepared report by Caltrans for the SB 1010 Advisory Committee to OCTA.

The current RTP (Exhibit 5.5 in the RTP and Figure PD-3 in the PEIR) shows a broad Riverside County/Orange County corridor with the alignment to be determined. We strongly support the development of an additional corridor between Riverside County and Orange County to help relieve the serious congestion on SR-91, and request that the RTP further refine the location of the corridor, starting at a point near the Cajlaco/ I-15 Interchange and to link directly to Route 241.

The RTP plan should include the Pine/Schleisman/Arlington corridor, adopted by the Four Corners Group as a critical east-west arterial corridor north of SR-91.

The plan should further emphasize use alterative transportation modes, include rail and bus transit and development of regional non-motorized trails

Thank you for this opportunity, and we look forward to active participation in the RTP CEQA process.

Sincerely

Ned Ibrahim, PE
Principal Civil Engineer
City of Corona - Public Works Dept
909/ 736 - 2290

CC: "Amad Qattan" <Amad.Qattan@ci.corona.ca.us>, "John Licata" <John.Licata@ci.corona.ca.us>

United States Department of the Interior

NATIONAL PARK SERVICE
Santa Monica Mountains National Recreation Area
401 West Hillcrest Drive
Thousand Oaks, California 91360-4207

In reply refer to:
L76 (SAMO)

July 9, 2003

Ted Harris, Regional Environmental Planner
Southern California Association of Governments (SCAG)
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

Dear Mr. Harris:

The National Park Service recommends the incorporation of the proposed Heart-of–the-Park Shuttle Demonstration Project in the 2004 Regional Transportation Plan.

The National Park Service, in cooperation with the California State Parks, is proposing a tourist shuttle system that will serve many popular sites within the Santa Monica Mountains National Recreation Area (SMMNRA). Mini-buses will be used to travel a loop in the central part of the park using Malibu Canyon Road, Pacific Coast Highway, Kanan Dume Road and Mulholland Highway.

As proposed, the demonstration shuttle project will last three years and operate on weekends only. During the demonstration period , the shuttle fleet will consist of four mini-buses. The shuttle route has 13 proposed stops that will include destination sites such as Malibu Creek State Park, Malibu Lagoon State Beach, Solstice Canyon, Zuma Beach, Paramount Ranch, Tapia Park, Backbone Trailheads, Rocky Oaks and Peter Strauss Ranch. A vital part of the shuttle system's success is the proposed link to MTA's local bus route 434 and possibly route 161 in the future.

The purpose of the demonstration project is to determine the benefits of a park shuttle system that may address current transportation issues such as roadway congestion, lack of accessibility, limited parking and improving visitor experience. The ridership for the project is projected between 23,500 and 30,500 passengers in the first year of operation. If the demonstration phase is successful, we hope to permanently establish the shuttle system in the park.

The National Park Service thanks SCAG for the opportunity to comment on the Notice Of Preparation of the Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP). If you have questions, please call Jessica Zakrie, Outdoor Recreation Planner, at (805) 370-2332.

Sincerely,

Woody Smeck
Superintendent

cc: Joe Edmiston, Executive Director, Santa Monica Mountains Conservancy
Hayden Sohm, Acting Superintendent, Angeles District, State Department of Parks and Recreation
Becca Barkin, Executive Officer, Resource Conservation District of the Santa Monica Mountains

DEPARTMENT OF TRANSPORTATION
District 12
3337 Michelson Drive, Suite 380
Irvine, CA 92612-8894

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July 10, 2003

Mr. Ted Harris
Regional Environmental Planner
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

File: IGR/CEQA
SCH#: Not available
Log #: 1260
SR: All Routes

Subject: **NOP for the 2004 Regional Transportation Plan (RTP)**

Dear Mr. Harris,

Thank you for the opportunity to review and comment on the **Notice of Preparation** received June 11, 2003, for the **2004 Regional Transportation Plan.** The project is to create a regional plan that provides an assessment of overall growth and economic trends for six counties as well as a framework for a cohesive, balanced, multi-modal transportation system that meets State and Federal requirements. The four alternatives are: No Project, Modified 2001 RTP, PILUT Alternative One, PILUT Alternative Two.

Caltrans District 12 is a reviewing agency on this project and has the following comments:

1. It is important that the document contain consistency and uniformity within the region in the identification of adverse traffic impacts to State Highway Facilities that may be caused as a result of proposed development, as well as the identification of measures to mitigate those traffic impacts.

2. The 2004 RTP Program EIR should address any new and existing air quality guidelines as set forth by the United States Environmental Protection Agency and/or the California Air Resources Board.

3. Measurement of emissions adjacent to transportation facilities in highly urbanized areas (such as Orange County) may not all be related directly to the transportation facilities and therefore a more detailed analysis of the actual emission source needs to be identified.

4. Due to the significance of the tremendous goods movement growth within the region, there needs to be an in depth analysis of the impacts to air quality as a result of this growth and the strategy to mitigate it.

Please continue to keep us informed of this project and other future developments, which could potentially impact our transportation facilities. If you have any questions or need to contact us, please do not hesitate to call Maureen El Harake at (949) 724-2086.

Sincerely,

Robert Joseph, Chief
IGR/Community Planning Unit

c: Ron Helgeson, HQ IGR/CEQA
Terry Roberts, OPR
Everrett Evans, Regional Planning
Leslie Manderscheid, Environmental Planning Branch B

CITY OF ANAHEIM, CALIFORNIA

Planning Department

July 10, 2003

Ted Harris, Regional Environmental Planner
Southern California Association
of Governments (SCAG)
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

RE: NOTICE OF PREPARATION (NOP) OF A PROGRAM ENVIRONMENTAL IMPACT REPORT (PEIR) FOR THE 2004 REGIONAL TRANSPORTATION PLAN (RTP)

Dear Mr. Harris:

Thank you for the opportunity to review and comment on the above-referenced document. City of Anaheim staff offer the following comments:

- Staff requests that the RTP population, household and employment growth projections that are evaluated in the PEIR meet the criteria of being realistic, probable, and defensible for the City of Anaheim, the County of Orange, and the region. The projections currently under review by SCAG (Trend/Local A, Trend/Technically Balanced Growth Projection (TBGP), and Trend/TBGP Modified) and as approved by the Community, Economy, and Human Development Committee (CEHD) do not meet said criteria as they contain a level of growth that exceeds maximum potential densities and associated infrastructure capacities (e.g. transportation, water, sewers, storm drains, etc.), particularly in a built environment such as Anaheim. They also do not give consideration to environmental concerns that may constrain development. At this time, the only projection reviewed by City staff that meets the above criteria is the Modified TBGP that was cooperatively prepared by representatives from the Council's of Government and Transportation Agencies in Orange, Riverside and San Bernardino Counties. The Modified TBGP was forwarded by the Center for Demographic Research to SCAG staff in April and May of this year and should be, and is requested to be, addressed as one of the alternatives in the PEIR.

- Inasmuch as the Modified 2001 Regional Transportation Plan Alternative has yet to be selected, Staff also requests the opportunity to review and provide comments to SCAG

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P.O. Box 3222, Anaheim, California 92803 • (714) 765-5139 • www.anaheim.net

DRUG USE IS LIFE ABUSE

on the projection ultimately selected through the NOP process. Pursuant to the 2003 CEQA Guidelines, Section 15082, staff does not have sufficient information describing the project and the potential environmental effects to enable a meaningful response at this time.

Please forward any subsequent information, public notices and/or environmental documentation regarding this project to my attention at the address listed at the bottom of the first page of this letter. If you have any questions regarding these comments, please do not hesitate to contact Tracy Sato, Senior Planner, at (714) 765-5139, Extension 5735.

Sincerely,

Mary R. McCloskey

Mary R. McCloskey
Deputy Planning Director

cc: Phil Tsunoda, Intergovernmental Relations Officer
John Lower, Traffic/Transportation Manager
Tracy Sato, Senior Planner
Dr. William Gayk, Director, Center for Demographic Research

H:\DOCS\ADVPLAN\Jpowers\Projects\Responsible Agency Review\SCAG\2004 RTP\NOP response Letter.doc

CITY OF GLENDALE, CALIFORNIA
Planning Division

633 East Broadway, Room 103
Glendale, California 91206-4385
(818) 548-2140 (818) 548-2144
(818) 548-2115 Fax (818) 240-0392
www.ci.glendale.ca.us

July 11, 2003

Mr. Ted Harris
Regional Environmental Planner
Southern California Associations of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

Re: Notice of Preparation of a Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP)

Dear Mr. Harris:

The City of Glendale Planning Division appreciates this opportunity to comment on the above referenced project, relative to impacts within in the City of Glendale. The proposed project involves updating the Regional Transportation Plan (RTP) for Southern California, last updated in April 2001. The RTP provides and assessment of the overall growth and economic trends in the six counties with the SCAG region and provides for a cohesive, balanced, and multi-modal transportation system. To enable the City of Glendale, Planning Division staff to adequately review and comment on the proposed project we recommend the following information, where applicable, be included in the Draft Environmental Impact Report:

1. The author(s) of the Draft PEIR should consider including, in the list of impact categories, Hazards & Hazardous Materials, for the purposes of discussing impacts related to the transportation of hazardous substances and the potential for the release of hazardous materials into the environment during construction related activities.

If you have any questions regarding the City of Glendale, Planning Division staff comments, please feel free to contact me at (818) 548-2140. Thank you for this opportunity to provide comment.

Sincerely,

Erik Krause
Planner

EK:ek

WE RECYCLE

DEPARTMENT OF FISH AND GAME
South Coast Region
4949 Viewridge Avenue
San Diego, California 92123
(858) 467-4201
(858) 467-4235 FAX

July 14, 2003

Ted Harris
Southern California Association of Governments
818 W. 7th Street; 12th Floor
Los Angeles, CA 90017-3435

Comments on the Notice of Preparation of a Program Environmental Impact Report for the 2004 Regional Transportation Plan (SCH#2003061075)

Dear Mr. Harris:

The South Coast Region of the Department of Fish and Game (Department) appreciates this opportunity to comment on the above-referenced project relative to impacts to biological resources. The South Coast Region includes the coastal counties from San Diego to Santa Barbara. The Department is both a Trustee and Responsible Agency pursuant to the California Environmental Quality Act (CEQA), Sections 15386 and 15381 respectively. As a Trustee Agency, the Department must be consulted by the Lead Agency during the preparation and public review of CEQA documents. The Department is responsible for the conservation, protection, and management of the state's biological resources, including rare, threatened, and endangered plant and animal species pursuant to the California Endangered Species Act (CESA). The Department also administers the Natural Community Conservation Program (NCCP).

According to the Notice of Preparation (NOP), the proposed Regional Transportation Plan (RTP) will establish the priorities for future transportation improvements in a six-county area that includes Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. Major transportation projects receiving either Federal or State funding must be consistent with the provisions of the latest plan, which must be updated at least once every three years. The 2004 RTP is being developed as part of a new process that will integrate transportation, land-use and the environment. This process, known as Planning for Integrated Land Use and Transportation (PILUT) is intended to move Southern California towards a more sustainable future. The Draft Program Environmental Impact Report (DPEIR) will evaluate at least four alternatives. The NOP also states that the DPEIR will evaluate environmental effects, such as direct and indirect effects, growth-inducing impacts, and cumulative impacts, and will include mitigation measures to offset potentially significant effects. In addition, the PEIR will supply the foundation for subsequent, project-specific environmental review.

The Department supports SCAGs decision to implement planning which integrates land use, transportation and the environment, and the use of a Program level EIR that can more effectively address regional issues. There are several advantages to the use of a PEIR that should be fully utilized. A PEIR can provide more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action (Section 15168[b][1] of the CEQA Guidelines). The PEIR should include "a range of reasonable alternatives to the project... 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," as required by Section 15126.6 (a) of the CEQA Guidelines. The discussion must include alternatives, "even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly" (Section 15126.6 [b] of the CEQA Guidelines). In order for the Department to utilize the final document as a responsible agency, the alternatives must include those which avoid or otherwise minimize impacts to sensitive biological resources that are regulated by Fish and Game Code. In addition, SCAG must ensure that in the process of determining the improvements that will ultimately be developed into projects, that alternatives which would avoid or minimize impacts to biological resources are not eliminated from further consideration at the PEIR stage.

Another advantage of a PEIR is that it can "ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis" (Section 15168[b][2] of the CEQA Guidelines). Since the RTP consists of many projects causing related impacts, the Department recommends that the PEIR provide a thorough cumulative impacts analysis that is both well-supported by sufficiently detailed information and addresses biological resources on a local and regional level. A PEIR also can "allow the lead agency to consider broad policy alternatives and program wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts" (Section 15168[b][4] of the CEQA Guidelines). The Department is especially interested in the PEIR identifying the regional impacts of the RTP on biological resources, and in particular, those impacts that cannot be effectively analysed or mitigated at the project level.

To enable Department staff to adequately review and comment on the proposed project from the standpoint of the protection of plants, fish, wildlife, and sensitive habitats, we recommend the following information be included in the DPEIR:

1. A complete discussion of the goal of the RTP, the purpose and need for the proposed projects that comprise the plan, and the function this PEIR is intended to fulfill in the CEQA process. Since the lead agency for subsequent CEQA documents will not be the same as the lead agency for the programmatic, a complete discussion of how SCAG can ensure implementation of the policy and mitigation measures presented in the PEIR is needed.

2. A thorough discussion of the extent to which SCAG and the RTP can influence land use and growth patterns.

3. A complete description of the proposed plan and all plan alternatives. This should include: narrative, tables, and figures that clearly describe/depict the following for the proposed plan and each plan alternative: (i) the habitat types within the project area, (ii) the projected distribution of the human population anticipated as a result of the different transportation scenarios and the relative footprints of those land use patterns on biological resources, and (iii) how preservation of biological resources will be accommodated by each scenario.

   The descriptions and analyses of the alternatives should ensure that alternatives to the proposed project are fully considered and evaluated. The analyses must include alternatives that avoid or otherwise reduce impacts to sensitive biological resources. Because of the magnitude of the acreage involved and the many sensitive species and habitats that could be negatively affected or lost as a result of both the RTP and the growth patterns influenced by it, the CEQA alternatives analysis for this plan is extremely important. The Department is particularly interested in the DPEIR describing "a range of reasonable alternatives to the project... 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" (Section 15126.6 (a) of the CEQA Guidelines).

4. An identification and discussion of potential impacts to sensitive species, including State and federally listed rare, threatened, endangered, and proposed or candidate species, California Species of Special Concern, State Protected and Fully Protected species, and any locally unique species and sensitive habitats within the plan's area of potential effect.

5. A complete discussion of the direct, indirect, and cumulative impacts expected to adversely affect biological resources. This should include:

   a. Discussions regarding the regional setting, pursuant to the CEQA Guidelines Section 15125(a), with special emphasis on resources that are rare or unique to the region that would be affected by the plan. This should include comprehensive and geographically specific information on both terrestrial and aquatic resources that are within the area of potential effect. This discussion is critical to an assessment of environmental impacts.

   b. Discussions regarding the anticipated impacts on sensitive species and habitats.

   c. Discussions regarding potential indirect impacts on biological resources, including

resources on nearby public lands, open space, adjacent natural habitats, riparian and other aquatic ecosystems, and any designated and/or proposed NCCP reserve lands.

d. Discussions regarding impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas. At the programmatic level, it is particularly important to provide a thorough analysis and discussion of those species that require large territories to maintain sustainable populations since the combination of the projects that make up the plan will have a much greater impact that any individual project . To determine the potential impacts on wildlife movement and to assist in determining appropriate measures to eliminate or minimize these impacts, we recommend that wildlife movement studies be conducted.

e. An analysis of cumulative effects, as described under CEQA Guidelines Section 15130.

f. An analysis of the effect that the project or any alternative may have on completion and implementation of regional and/or sub-regional conservation programs. Under Section 2800 *et seq*. of the Fish and Game Code, the Department, through the NCCP program, is coordinating with local jurisdictions, landowners, and the Federal Government to preserve local and regional biological diversity. The Department recommends that SCAG ensure that project alternatives do not preclude long-term preserve planning options and that projects conform with other requirements of the NCCP program.

6. A thorough discussion of the growth-inducing impact as described in CEQA Guidelines Sections 15126 and 15126.2(d). The discussion should include the role that the RTP plays in providing the infrastructure necessary to accommodate growth. Although growth projections are based on a number of factors beyond the control of SCAG, the maintenance of an effective transportation system contributes to the ability of the region to accommodate new growth. The location, capacity, and type of transportation infrastructure can influence the "quality of life" or desirability of areas, which influences the demand for growth.

7. Specific mitigation measures for regionally significant impacts need to be addressed in the PEIR, rather than at the project level. The RTP will consist of many separate projects that will function both individually at the local level and as part of the larger transportation system on the regional level. Similarly, impacts to biological resources have both a local and regional context. While it is possible to mitigate for local impacts at the project level,

impacts on the ecosystem can only be addressed at the regional level; this discussion and appropriate mitigation[1] must be included in the PEIR.

The Department appreciates the opportunity to comment on this NOP. Please contact Pam Beare at (858) 467-4229 if you have any questions or comments concerning this letter.

Sincerely,

William E. Tippets
Environmental Program Manager

cc: State Clearinghouse

File: Chron
file: SCAGNOP.wpd

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1 One example of a method to mitigate for regional biological impacts would be mitigation banking. SCAG could partner with the appropriate local jurisdiction(s) and the California Department of Transportation to develop mitigation banks that preserve regionally significant ecosystems, are connected via adequate corridors with other preserved habitats, and will function to maintain viable populations of both plants and animals over the long-term. Preservation and restoration on this scale may also be more economical.

DEPARTMENT OF CONSERVATION

STATE OF CALIFORNIA

DIVISION OF LAND RESOURCE PROTECTION

801 K STREET
SACRAMENTO
CALIFORNIA
95814

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INTERNET
consrv.ca.gov

GRAY DAVIS
GOVERNOR

July 14, 2003

Mr. Ted Harris, Regional Environmental Planner
Southern California Association of Governments
818 West 7th Street, 12th Floor
Los Angeles, CA 90017-3435

Subject: Notice of Preparation (NOP) of a Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP)
SCH# 2003061075

Dear Mr. Harris:

The Department of Conservation's Division of Land Resource Protection (Division) monitors farmland conversion on a statewide basis and administers the California Land Conservation (Williamson) Act and other agricultural land conservation programs. The Division has reviewed the list of impact categories for the program-level RTP and offers the following recommendations for the PEIR with respect to the project's potential impacts on agricultural land.

The NOP's list of impact categories includes a category called "Land Use." We recommend that a separate category be established for Agricultural Resources which would analyze project impacts on agricultural and grazing lands. We also recommend that the PEIR provide general information on the items listed below and that future project-specific environmental documents address the issues in further detail.

Agricultural Setting of the Project

- The environmental document should describe the project setting in terms of the actual and potential agricultural productivity of the land. For example, the document could utilize information from the Division's most current Important Farmland Map(s) for the area. In areas lacking published modern soil surveys and Important Farmland Maps, we recommend assessment of agricultural soil quality by using the Williamson Act's definition of prime agricultural land (Government Code Section 51201(c)). In addition, we would recommend including the following items of information to characterize the agricultural land resource setting of the area.

- Current and past agricultural use of the project area. Include data on the types of crops grown, and crop yields and farmgate sales values.
- To help describe the full agricultural resource value of the soils on the site, we recommend the use of economic multipliers to assess the total contribution of the site's potential or actual agricultural production to the local, regional and state economies. State and federal agencies such as the UC Cooperative Extension Service and USDA are sources of economic multipliers.

Project Impacts on Agricultural Land

- Type, amount, and location of farmland conversion resulting directly from project implementation.
- Type, amount, and location of farmland conversion resulting indirectly from project implementation through growth inducement.
- Impacts on current and future agricultural operations; e.g., land-use conflicts, increases in land values and taxes, vandalism, etc.
- Incremental project impacts leading to cumulatively considerable impacts on agricultural land. This would include impacts from the proposed project as well as impacts from past, current and probable future projects.

Impacts on agricultural resources may also be quantified and qualified by use of established thresholds of significance (California Code of Regulations Section 15064.7). The Division has developed a California version of the USDA Land Evaluation and Site Assessment (LESA) Model, a semi-quantitative rating system for establishing the environmental significance of project-specific impacts on farmland. The model may also be used to rate the relative value of alternative project sites. The LESA Model is available on the Division's website listed on the next page.

Williamson Act Lands

A project is deemed to be of statewide, regional or area-wide significance if it will result in cancellation of a Williamson Act contract for a parcel of 100 or more acres [California Code of Regulations Section 15206(b)(3)]. If lands under Williamson Act contract exist on or adjacent to the project area, the Department recommends that the following information be provided in the DEIR:

- A map detailing the location of agricultural preserves and contracted land within each preserve. The DEIR should also tabulate the number of Williamson Act acres, according to land type (e.g., prime or non-prime agricultural land), which could be impacted directly or indirectly by the project. Similarly, information on

lands under agricultural conservation easements or open space easements should also be provided.

- A discussion of lands under Williamson Act contract subject to public acquisitions to accommodate the project.

It should be noted that State policy is to avoid location of public improvements in agricultural preserves and especially on lands under Williamson Act contract. If public acquisition is considered, there are specific required findings. (See Government Code Sections 51290-51295 for specific details.) The Lead Agency should also provide notice to the Department of Conservation. The notice should be mailed to:

Darryl Young, Director
Department of Conservation
c/o Division of Land Resource Protection
801 K Street MS 13-71
Sacramento, CA 95814-3528

Project Alternatives and Mitigation Measures

Feasible alternatives to the project's location or configuration that would lessen or avoid farmland conversion impacts should be considered in the environmental document. If there are no feasible project alternatives to avoid impacts on agricultural land, then mitigation measures should be considered.

One mitigation measure to consider is the purchase of agricultural conservation easements on land of at least equal quality and size as partial compensation for the direct loss of agricultural land, as well as for the mitigation of growth-inducing and cumulative impacts on agricultural land. We highlight this measure because of its growing acceptance and use by lead agencies as mitigation under the California Environmental Quality Act (CEQA).

Mitigation using conservation easements can be implemented by at least two alternative approaches: the outright purchase of conservation easements tied to the project, or via the donation of mitigation fees to a local, regional or statewide organization or agency, including land trusts and conservancies, whose purpose includes the purchase, holding and maintenance of agricultural conservation easements. Whatever the approach, the conversion of agricultural land should be deemed an impact of at least regional significance and the search for mitigation lands conducted regionally, and not limited strictly to lands within the specific transportation project corridor.

Information about conservation easements is available on the Division's website, or by contacting the Division at the address and phone number listed below. The Department's website address is:

http://www.conservation.ca.gov/DLRP/

Of course, the use of conservation easements is only one form of mitigation that should be considered. Any other feasible mitigation measures should also be considered.

Thank you for the opportunity to comment on the NOP. If you have questions on our comments, or require technical assistance or information on agricultural land conservation, please contact the Division at 801 K Street, MS 13-71, Sacramento, California 95814; or, phone (916) 324-0850.

Sincerely,

Erik Vink
Assistant Director

DEPARTMENT OF PUBLIC WORKS

FLOOD CONTROL • REGIONAL PARKS • SOLID WASTE MGMT • SURVEYOR • TRANSPORTATION

COUNTY OF SAN BERNARDINO
ECONOMIC DEVELOPMENT
AND PUBLIC SERVICES GROUP

825 East Third Street • San Bernardino, CA 92415-0835 • (909) 387-8104
Fax (909) 387-8130

KEN A. MILLER
Director of Public Works

July 15, 2003

Mr. Ted Harris, Regional Environmental Planner
Southern California Association of Governments (SCAG)
818 West 7th Street, 12th Floor
Los Angeles, CA 90017-3435
harrist@scag.ca.gov

File#10(ENV)-3.01

RE: NOTICE OF PREPARATION OF PROGRAM ENVIRONMENTAL IMPACT REPORT (PEIR) – 2004 REGIONAL TRANSPORTATION PLAN (RTP)

Dear Mr. Harris:

Thank you for giving the San Bernardino County Department of Public Works (Department) the opportunity to comment on the above-referenced project.

The 2004 Regional Transportation Plan will incorporate the six counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura.

The Traffic Division requests a copy of the traffic study to be submitted to the Department for review.

Should there be any updates to this project, please notify our Department so that we may have the opportunity to comment on the changes. If you have any questions or need additional information, please contact Kelly A. Rozich at (909) 387-8114.

Sincerely,

NARESH P. VARMA, Chief
Environmental Management Division

NV:KR/RegionalTransPlan2004-NOPEIR-Response

cc: Jacob Babico, Traffic Division
Kelly A. Rozich, EMD
KAM/PJM Reading File

WALLY HILL
County Administrative Officer
JOHN GOSS
Assistant County Administrator
Economic Development and
Public Services Group

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DENNIS HANSBERGER ..... Third District
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July 15, 2003

Mr. Ted Harris
Regional Environmental Planner
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

Subject: Notice of Preparation of a Program Environmental Impact Report for the 2004 Regional Transportation Plan

Dear Mr. Harris:

The Orange County Transportation Authority (OCTA) has reviewed the above referenced document and has the following comments:

The Notice of Preparation indicates that the RTP Program Environmental Impact Report will evaluate at least four alternatives, including the No Project alternative, Modified 2001 RTP alternative, and PILUT One and Two. The strategies to accompany each RTP alternative have significant ramifications to transportation agencies, and OCTA requests that SCAG provide adequate time to review and provide input into these strategies for each alternative including transportation investments, transportation policies, growth policies and the growth projection.

The RTP growth projection will play a key role in the planning of regional, sub-regional, and even local agencies transportation infrastructure systems. OCTA encourages SCAG to work closely with OCCOG to develop mutually acceptable growth forecasts for Orange County which will be used in the development of the Regional Transportation Plan.

OCTA believes that the new PILUT process used to develop the 2004 RTP should take into account local subregional needs (including projects that have been previously programmed in the RTP as "planned") and provide flexibility to define new projects in consultation with the County Transportation Commission.

OCTA suggests at least one RTP alternative to be studied in the PEIR including the 2001 RTP projects, as well as new projects specifically requested by the county transportation commissions in the SCAG region for the 2004 RTP. OCTA submitted additional projects for inclusion in the 2004 RTP in December 2002. Attached is OCTA's list of projects approved by the OCTA Board for

Orange County Transportation Authority
550 South Main Street / P.O. Box 14184 / Orange / California 92863-1584 / (714) 560-OCTA (6282)

inclusion in the 2004 RTP (including Balanced plan, Preferred plan projects, and amended projects).

The OCTA appreciates the opportunity to provide input on this project. Please contact me at 714-560-5741 or kmortazavi@octa.net if you have any questions or concerns.

Sincerely,

Kia Mortazavi
Manager of Planning and Programming

c: Dave Elbaum, OCTA Director of Strategic Planning

Attachment

OCTA 2002 Long-Range Transportation Plan
Balanced Plan Project List
Includes Baseline & Financially Constrained Elements

2002 OCTA Long-Range Transportation Plan Balanced Plan
In 2002 Dollars, In Millions

Ref	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
	I. Baseline Improvements (Major Projects - Others Included in 2002 RTIP)											
	Freeway/State Highways											
1	I-5 NB/SB Far North	LA County Line to SR-91	Add one mixed flow and 1 HOV each direction	same	2008	141.9	37.0	178.9				178.9
2	I-5 at Vista Hermosa	Vista Hermosa	In San Clemente, add Vista Hermosa I/C	same	2005		11.5	11.5				11.5
3	SR-22 EB/WB	Valley View to SR-55 Plus Corridorwide Aux and Operational Improvements	Add 1 HOV lane each direction EB/WB aux Knott to Beach, continuous aux Beach to I-5, braid SB 57 to WB 22 w/City Drive, EB collector-distributor Lewis to I-5, aux SB I-5 to EB 22 end of connector to Main, EB aux Glassell to Tustin, Beach/Brookhurst ramp improvements	clarify project definition	2006	362.4	25.0	387.4				387.4
4	SR-55	Alton Overcrossing	In Santa Ana - Alton overcrossing	same	2006		52.6	52.6				52.6
5	SR-55	SR-22 to SR-91	Widen SR-55 (complete)	same	complete	101.1	0.0	101.1				101.1
6	SR-57	Lambert & Imperial	Interchange improvements	same	2004		1.4	1.4				1.4
7	SR-73 NB/SB	Spruce/Birch to I-405	Add 1 MF each direction plus soundwalls	same	2006	15.2	1.8	17.0				17.0
8	SR-73/I-405	At I-405/SR-73 interchange	Reconstruct 405/73 with braids, construct NB on-ramp from Hyland, NB on-ramp from Anton, NB off-ramp to Ave of the Arts	same	2003	42.0	11.0	53.0				53.0
9	SR-133 NB/SB	SR-73 to I-405	Realign, widen road to 4 lanes, drainage	same	2005	5.9	26.3	32.2				32.2
10	I-405/Seal Beach Blvd	Seal Beach Overcrossing	Widen bridge from 4 to 6 lanes	same	2003		4.3	4.3				4.3
11	I-405 at Bolsa	Bolsa Overcrossing	In Westminster,widen Bolsa bridge Chestnut-Goldenwest	same	2005		4.0	4.0				4.0
12	I-405 at Susan Street	Susan Street	In Costa Mesa, new off-ramp at Susan St/South Coast Dr	same	2003		2.4	2.4				2.4
12A	I-405 Irvine	MacArthur to Culver	Add aux lane (2002 ITIP)	add	2003		13.6	13.6				13.6

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Ref	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
13	I-405 at Harbor Blvd	Harbor Interchange	NB Harbor at SB I-405 on-widen NB Harbor off and approaches at I-405 from 3 to 4 lanes.	same	2006		2.2	2.2				2.2
14	I-405 SB at Fairview	On-Ramp	Widen bridge and onramp to accommodate 3 left turn lanes	add	2006		2.2	2.2				2.2
15	Other Freeway Projects	Completed M / Other Freeway Projects	I-5 Widening (N/S), SR-91 HOV, other M freeways	complete	N/A	136.7		136.7				136.7
	Freeway Chokepoints											
16	I-5 SB	Culver off-ramp	Widen off-ramp to 2 lanes	New Baseline	2004	1.9		1.9				1.9
17	I-5 SB	La Paz-Oso Pkwy	SB auxiliary lanes to provide storage at Oso off ramp (does not extend through La Paz), intersection improvements, free rt turn NB Cabot and increase on-ramp storage	New Baseline	2004	17.0		17.0				17.0
18	I-5/405 NB	Alicia-El Toro	Signing and restriping	New Baseline	2005					1.2	1.2	1.2
19	I-5 SB	Camino Capistrano	Widen Camino Capistrano off ramp	New Baseline	2005	9.2		9.2				9.2
20	I-5 at Pico	Avenue Pico	Widen ramp	New Baseline	2004	2.7		2.7				2.7
21	SR-91 WB	OC/Riv Line-Coal Cyn	Lane drop restoration/restriping (advance 2 yrs)	New Baseline	2004	4.0	7.1	11.1				11.1
22	I-405 NB/SB	Magnolia-Beach	Add auxiliary lane	New Baseline	2006	27.2	9.2	36.4				36.4
23, 24	I-405 NB	SR-133 to Sand Cyn	Widen NB I-405 SR-133 to Sand Cyn off, add aux lane	New Baseline	2004		2.1	2.1				2.1
	HOV Projects											
25	I-405/SR-55	North Transitway	MOS 2&3 - N Transitway/Bristol Braid	same	2004	73.9	12.6	86.5				86.5
26	I-405/SR-55	South Transitway	Balance of MOS 1 - 405/55 - transitway	same	2002	35.8	0.5	36.3				36.3
27	I-605 NB/SB	I-405 to LA County Line	Add 1 HOV lane each direction	same	2002		10.1	10.1				10.1
	Toll Roads											
28	SR-73 SJHTC	Glenwood Interchange (I/C)	Construct Glenwood/Pacific Pk Dr I/C	same	2007	6.0	33.0	39.0				39.0
29	SR-73 SJHTC	Catalina View TP to MacArthur Blvd.	Add 1 MF lane NB	New Baseline	2007		9.0	9.0				9.0

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In 2002 Dollars, In Millions

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						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
30	SR-73 SJHTC	SR-73 @ Jamboree	Construct interchange improvements at SR-73 and Jamboree	New Baseline	2007		2.0	2.0				2.0
31	SR-133 ETC	I-5 to SR-241/SR-133 interchange	Add 1 MF lane each direction	same	2005		14.0	14.0				14.0
32	SR-241 FTC-S	I-5 to Oso Parkway	2 MF each direction plus climbing & aux lanes	New Baseline	2007		478.0	478.0				478.0
33	SR-241 FTC	Portola N to ETC	1 MF each direction	New Baseline	2005		5.3	5.3				5.3
34	SR-241 FTC	Santa Margarita Pkwy to Bake Pkwy	Add 1 MF lane each direction plus climbing & aux lanes	New Baseline	2007		120.5	120.5				120.5
35	SR-241 ETC	Chapman Ave to SR-133	Add 1 MF lane in each direction	New Baseline	2007		21.4	21.4				21.4
36	SR-241 FTC	Santa Margarita Interchange	Widen Santa Margarita NB on-ramp & Trabuco Bridge	New Baseline	2005		10.1	10.1				10.1
37	SR-241 FTC	New Bandares Overcrossing	Add Banderas Overcrossing on SR-241	New Baseline	2005		5.5	5.5				5.5
38	SR-261 ETC	Walnut to SR-241/261Interchange	Add 1 MF lane each direction plus climbing & aux lanes	New Baseline	2007		35.6	35.6				35.6
		Total Baseline Freeway/Toll Roads/Chokepoints				**982.9**	**971.3**	**1,954.1**	**0.0**	**1.2**	**1.2**	**1,955.3**
	Arterials & Grade Crossings											
39	Alicia Parkway	In Mission Viejo, Charlinda to Muirlands	Widen NB to 7 lanes-Charlinda to Murilands	same	2002		0.3	0.3				0.3
40	Alicia Parkway	In Laguna Hills, Paseo De Alicia to I-5	Alicia @ I-5 - Add 4th EB lane Paseo de Alicia to I-5 SB Ramp	same	2006	0.1	0.5	0.6				0.6
41	Barranca Parkway	Redhill to Jamboree	Widen from 6 to 8 lanes - Phase II	same	2005		14.6	14.6				14.6
42	Bolsa Chica	In Westminster, Duncannon to I-405	Widen from 4 to 6 lanes	same	2005		0.6	0.6				0.6
43	Bristol Street	In Santa Ana, Warner to Memory Lane	Widen from 4 to 6 lanes, operational improvements and accommodate CenterLine project.	modify description	2006	34.4	86.6	121.0				121.0
44	Brookhurst Street	In Anaheim, La Palma to EB SR-91	Upgrade from secondary to major	same	2005	8.0	0.0	8.0				8.0

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						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
45	Cabot Rd Bridge	In Laguna Niguel at Cabot Rd Bridge	Cabot Road bridge to Camino Capistrano (design only).	modify	2003		1.9	1.9				1.9
46	Carbon Cyn (SR142)	In Brea, Carbon Cyn & Valencia	Widen from two to five lanes (3 WB, 2 EB) improve intersection	same	2002		2.6	2.6				2.6
47	Chapman Ave	In Orange, Tustin to SR-55	Widen to 6 lanes, add dedicated right hand turn lanes	same	2004		6.8	6.8				6.8
48	Crown Valley Pkwy	In Mission Viejo, Puerta Real to City Limits	Widen from 6 lane to 8 lane divided	same	2002		5.1	5.1				5.1
49	Crown Valley Pkwy	In Laguna Niguel, Crown Valley Pkwy at Forbes Road	Intersection Widening	same	2003		0.1	0.1				0.1
50	Crown Valley Pkwy	In Laguna Niguel at Niguel Rd	Intersection Widening	same	2003		0.1	0.1				0.1
51	Crown Valley Pkwy	In Laguna Niguel at Greenfield	Intersection Widening, add SB right lane	same	2004		0.2	0.2				0.2
52	Crown Valley Pkwy	In Laguna Niguel at La Paz	Intersection Widening, add 2nd NB left lane	same	2004		0.2	0.2				0.2
53	Culver Drive	In Irvine, Campus Dr to Bonita Cyn	Widen Culver from 2 to 4 lane divided + realign	same	2006	5.1	4.9	10.0				10.0
54	El Toro Road	Paseo de Valencia	Add one left/rt turn each direction	same	2004		0.5	0.5				0.5
55	El Toro Road	County, In Lake Forest at I-5	Widen to provide add'l EB lane De La Carlota to Bridger	same	2002		0.6	0.6				0.6
56	Fairview St	In Santa Ana, Civic Ctr to Garden Grove Blvd	Widen 4 to 6 lanes	same	2006		2.5	2.5				2.5
57	Golden Lantern	In Laguna Niguel, Aloma to Sardinia	Widen Golden Lantern from 4 to 6 lanes (Smart Street)	same	2005	2.2	2.2	4.4				4.4
58	Golden Lantern	In Laguna Niguel, Golden Lantern at Camino Del Avion	Intersection Widening	same	2003		0.1	0.1				0.1
59	Harbor Blvd	In Garden Grove, Trask to Woodbury	Widen Harbor from 5 to 8 divided lanes (Smart Street)	same	2003	2.1	0.3	2.4				2.4
60	Harbor Blvd	In Garden Grove, Woodbury to Westminster	Widen from 5 to 8 divided lanes (Smart Street)	same	2003	2.6	0.3	2.9				2.9
61	Harbor Blvd	SR-91 to I-405	Other Smart Street Improvements	same	2006		6.0	6.0				6.0
62	Imperial Hwy (SR90)	In Yorba Linda, Rose to Orangethorpe	Widen to 4 lanes, signal coordination, other Smart Street	same	2002	25.0		25.0				25.0

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						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
63	Imperial Hwy (SR90)	In Brea, SR-57 to Rose	Widening EB by 1 lane from east of Valencia to City Limits, other ops	same	2006	3.4		3.4				3.4
64	Imperial Hwy (SR90)	In Fullerton, 57 to Harbor	Upgrade from 4 to 6 lane major + Smart Street (3 miles)	same	2006	2.5		2.5				2.5
65	Imperial Hwy (SR90)	In Brea, at Kraemer	Add NB through and WB right turn on Imperial at Kraemer	same	2005		2.7	2.7				2.7
66	Imperial Hwy (SR90)	In La Habra, LAC line to Harbor	Restripe 6 lanes from LAC to Harbor, add raised median (Smart Street)	same	2004	8.9		8.9				8.9
67	Katella Avenue	Humor to Jean	Smart Street	change date	2009	5.4		5.4				5.4
68	Katella Avenue	Humor to 9th	Smart Street	clarify	2006	6.4		6.4				6.4
69	Katella Avenue	In Cypress, at Valley View	Widening of Katella at Valley View; install 4th EB lane on Katella	same	2003	0.4		0.4				0.4
70	Katella Avenue	County, 100'east of Jean to Magnolia	Smart Street - widen from 4 to 6 lanes, dedicated right turns	same	2006	5.6	0.0	5.6				5.6
71	Katella Ave	In Los Alamitos, Knott to I-605	Widen from 6 to 8 lanes, signal coordination, intersection improvements	same	2002	4.5	0.0	4.5				4.5
72	Katella Ave	In Stanton, Magnolia to Knott	Widen from 4 to 6 lanes, bus turnouts, other Smart Street	same	2006	5.2		5.2				5.2
73	Main Street	In Orange, Culver to S/O Chapman	Widen from 4 to six lanes, mid-block improvement Main/LaVeta	modify	2004		4.5	4.5				4.5
74	McFadden Avenue	In Huntington Bch, Gothard to Beach	Widen McFadden from 2 to 4 Div lanes Gothard to Beach	same	2002		3.5	3.5				3.5
75	Memory Lane	In Santa Ana, S.A. River Bridge	Widen from 4 to 6 lanes	same	2002		3.8	3.8				3.8
76	Miraloma, Van Buren, Richfield	In Placentia, Gap Closure	Miraloma, Van Buren, Richfield Gap Closure (to primary)	same	2002		0.5	0.5				0.5
77	Moulton / Edinger	In Santa Ana, Richey to Redhill	Restripe 6 lanes, add bike lanes, raised median, other Smart Street	same	2002	7.7	0.0	7.7				7.7
78	Moulton Parkway	In Irvine, Harvard to Lake Forest	Widen Moulton from 4 to 6 lanes (Smart Street)	same	2006	1.1		1.1				1.1
79	Moulton Parkway	In Laguna Hills, Lake Forest to El Pacifico	Widen from 8 to 9 lanes	same	2003		1.3	1.3				1.3

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In 2002 Dollars, In Millions

Ref	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
80	Newport Ave/SR-55	In Tustin, At Newport Ave at SR-55	NB ramp reconfiguration including relocation of existing ramps, construction of new ramps, construction of Newport Ave between Edinger and Valencia and realignment/construction of Del Amo Ave between Edinger and new ramp	add	2004	2.8	16.3	19.1				19.1
81	Newport Blvd	In Costa Mesa from 19th to 17th Street	Widen to provide 7 lanes (4 NB) 19th to 17th St and operational improvements	add	2004	1.2	4.3	5.5				5.5
82	Orangethorpe	In Placentia, Melrose to Temple	Widen from 4 to 6 lanes	same	2004		1.3	1.3				1.3
83	Paseo de Valencia	In Laguna Hills, Laguna Hls Dr to El Toro	Widen from 4 to 6 lanes	same	2004		2.7	2.7				2.7
84	Placentia Ave	In Newport Bch, Superior to Hospital Rd	Widen from 2 to 4 lanes	same	2002		2.0	2.0				2.0
85	Sand Canyon	In Irvine, Intersection of I-405	Ramp improvements	same	2002		1.6	1.6				1.6
86	Tustin Avenue	In Anaheim, La Palma to SR-91	Widen from 4 to 6 lanes	same	2002	3.6		3.6				3.6
87	Tustin Ranch Rd	In Tustin, Walnut to Edinger	Extend 6 lane major arterial Walnut to Edinger; grade sep at Edinger	same	2002		22.1	22.1				22.1
88	Valley View Street	In Buena Pk, Lincoln to Artesia	Street widening from 6 to 8 lanes - engineering & ROW	same	2002	0.3	0.7	1.0				1.0
	Other Contributions to Streets & Road Projects											
89	Measure M/MOE	Countywide	Other M Projects+ MOE to 2006	clarify	2006	267.7	320.7	588.4				588.4
	Grade Crossings											
90	Imperial	Orangethorpe Corridor	Imperial Highway in Yorba Linda	same	2005	40.6	4.5	45.1				45.1
91	Jeffrey	Orange/Olive Corridor	Jeffrey in Irvine, Undercrossing (1998 STIP)	same	2005	10.0	15.9	25.9				25.9
92	Red Hill	Orange/Olive Corridor	Design Red Hill Overcrossing/Viaduct in Tustin (1998 STIP)	same	2005	0.3	0.9	1.2				1.2

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						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
93	Sand Canyon	Orange/Olive Corridor	Design only - Sand Canyon grade separation in Irvine (1998 STIP)	same	2005	0.9	0.0	0.9				0.9
94	BNSF Rail Line - PA&ED of grade separation alternatives + grade separations at Melrose, Placentia	Orangethorpe Corridor	PA&ED of grade separation alternatives plus grade separations at Melrose, Placentia	modify	2006	5.1	30.5	35.6				35.6
	Total Baseline Arterials & Grade Crossings					**462.9**	**576.7**	**1,039.6**	**0.0**	**0.0**	**0.0**	**1,039.6**
	Bus Transit											
95	Baseline OCTA Fixed Route: Local Bus Service	Countywide Fixed Route Local Bus Service	Hold Service Levels Constant	same	2002-2030	994.1		994.1	4,112.8		4,112.8	5,106.9
96	Baseline OCTA Express Bus Service	Includes existing 200 and 700 routes	Hold Service Levels Constant	same	2002-2030	included in frte above	included in frte above	included in frte above	included in frte above	included in frte above	included in frte above	included in frte above
97	Baseline OCTA StationLink Rail Feeder Service	Includes existing rail feeder	Hold Service Levels Constant	same	2002-2030	included in frte above	included in frte above	included in frte above	included in frte above	included in frte above	included in frte above	included in frte above
98	Baseline OCTA Paratransit Service	Includes existing paratransit service	Includes ACCESS ADA service and Special Agency Service - 419,624 annual vsh	same	2002-2030	79.6		79.6	589.5		589.5	669.1
99	Bus Stop Accessibility Program	Countywide	Retrofit Key Bus Stops/Transfer Areas for ADA compliance (1.5m/year)	same	2002-2004	3.0		3.0				3.0
		Total Baseline Bus Transit				**1,076.6**	**0.0**	**1,076.6**	**4,702.3**	**0.0**	**4,702.3**	**5,778.9**

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						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
	Rail Transit											
100	Orange Line/IEOC Line/Riv-Full-LA	Lossan and Orange/Olive Corridors	Orange -19 daily trains, IEOC 12 daily trains at 90-min headways, Riv-Fullerton-LA Line May 2002 start at 5 daily trains (2 peak, 1 off peak)	modify	2002-2030	150.4	21.9	172.3	269.0	0.0	269.0	441.3
101	Orange/Olive Corridor	Lincoln Avenue Double Track	Double track (1998 STIP project)	modify	2005	costs included in project #100 above						
102	BNSF	Soundwall	Anaheim BNSF Soundwall (2002 STIP)	modify	2003	costs included in project #100 above						
103	Yorba Linda Metrolink Station	Yorba Linda	ITIP / other	modify	2007	costs included in project #100 above						
104	Buena Park Metrolink Station	Buena Park	2002 STIP	same	2003	costs included in project #100 above						
105	CenterLine (2002 Dollars)	Construct Tri City Line - 11 miles	Santa Ana Transportation Center to UCI	baseline LPA Revised	2011	652.2	596.5	1,248.7	210.1		210.1	1,458.8
			Total Baseline Rail Transit			**802.6**	**618.4**	**1,420.9**	**479.1**	**0.0**	**479.1**	**1,900.0**
	Baseline - Other											
106	Countywide Rideshare	Regional Rideshare Marketing	Provide $450,000 annually for regional rideshare for 2 years	same	2002-2003				0.9		0.9	0.9
			Total Other Baseline			**0.0**	**0.0**	**0.0**	**0.9**	**0.0**	**0.9**	**0.9**
			Total Baseline Program			**3,324.9**	**2,166.3**	**5,491.3**	**5,182.3**	**1.2**	**5,183.5**	**10,674.8**

Tier II - Beyond Baseline

Ref #	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Other	Total Cap	OCTA	Other	Total O/M	
	Freeway/Toll Road/Chokepoint Projects											
107	I-5 SB	1st and SR-55	Reconfigure to reduce weaving - interim project	modify	2020	50.0		50.0				50.0
108	I-5 SB	La Paz-Oso Pkwy	Extend auxiliary lane through interchange	clarify, move date	2030	1.5		1.5				1.5

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109	I-5 NB/SB	La Paz Road	Re-construct interchange to increase storage capacity of ramps	modify	2010		29.4	29.4				29.4
109a	I-5 SB	Stonehill Drive	Ramp improvements	add	2020		7.0	7.0				7.0
110	I-5 SB	Alicia Parkway	Extend auxiliary lane through interchange	clarify and move date	2030	5.0		5.0				5.0
111	I-5 NB/SB	Avery Parkway	Avery parkway ramp relocation, reconfiguration, upgrades	modify, move date	2010		13.9	13.9				13.9
112	I-5 NB/SB	Jamboree Road	Provide two lanes off and widen terminal section of off-ramp, modify NB ramp	same	2010	6.0		6.0				6.0
113	I-5 NB/SB	I-5/SR-74 Separation	Re-build interchange including widening of SR-74 overcrossing	move date	2010		50.0	50.0				50.0
114	SR-55	17th/4th/I-5 area	Address lane drop/merge issues	new	2010	10.0		10.0				10.0
115	SR-55 SB	SB Dyer to MacArthur	Aux lane	modify	2010		1.3	1.3				1.3
116	SR-57 NB	Lambert-Tonner Cyn	Truck climbing lane	clarify	2010	68.3		68.3				68.3
117	SR-57 NB	Orangethorpe-Lambert	MF or aux lane capacity	clarify	2010	77.0		77.0				77.0
118	SR-57 NB	SR-57 @ SR-91	Add 4th through lane @ SR-91 (costs to be determined)	modify	2010	TBD		TBD				0.0
119	SR-57 NB	Katella on to Lincoln off	Auxiliary lane & full standard median	clarify	2020		18.1	18.1				18.1
120	SR-57 SB	Ball off-ramp to Katella on-ramp	Add auxiliary lane	add	2030		75.0	75.0				75.0
121	SR-91 EB/WB	SR-55 to Riverside County Line	Add 1 MF lane each direction	add	2010	150.0	100.0	250.0				250.0
122	SR-91 WB	SR-71 to SR-241	Add 1 aux lane	modify	2010	5.0	5.0	10.0				10.0
123	SR-91 EB	SR-241 east to SR-71	Add 1 aux lane EB drops at Green River, another aux extends to SR-71	clarify, move date	2007	18.0	18.0	36.0				36.0
124	SR-91 EB/WB	EB truck scales to Imperial	Add storage lane at truck weigh in motion station	same	2007	8.0		8.0				8.0
125	SR-91 WB	NB SR-55 to WB SR-91 at Tustin	Add auxiliary lane	same	2010	35.0		35.0				35.0

2002 OCTA Long-Range Transportation Plan Balanced Plan
In 2002 Dollars, In Millions

Ref	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
126	SR-91 WB	SR-57 to I-5	Auxiliary lane	clarify, move date	2010	20.0		20.0				20.0
127	SR-91	Lakeview Interchange	Improve SR-91/Lakeview interchange area	modify	2010	15.0		15.0				15.0
128	SR-91/ Fairmont	Riverside County Line to SR-55	Add intermediate access and Fairmont drop ramp	add	2010	70.0		70.0				70.0
129	I-405/SR-55	South Bristol Braid	Interchange Improvement (City Project)	same	2020		40.0	40.0				40.0
130	I-405 SB	Irvine Center Drive	Add 2nd auxiliary lane	add	2010		1.3	1.3				1.3
131	I-405 NB	Jeffrey to Culver	Auxiliary Lane	add	2010		3.1	3.1				3.1
132	I-405 NB	Sand Cyn to Culver	Tie auxiliary lanes together	clarify, move date	2030		2.5	2.5				2.5
132-A	I-405	SR-73 to Beach	Add 1 MF lane each direction	add	2030	130.0		130.0				130.0
132-B	I-405 SB	Beach to I-605	Continuous aux, operational	add	2030	30.5	44.5	75.0				75.0
133	Countywide	Countywide	Other Chokepoints	new	2030	32.1	37.1	69.2				69.2
	Toll Road Improvements											
134	SR-73 SJHTC	I-5 in San Juan to Rte 73 Irvine	15-mile toll road - add 1 MF each direction plus climbing & aux lanes per SCAG/TCA MOU	same	2015		134.4	134.4				134.4
135	SR-91/SR-241	SR-91/SR-241 Interchange	Add direct toll-to-toll or HOV connection	same	2015		65.0	65.0				65.0
136	SR-91	From SR-241 to SR-71	Add toll lane and toll connection at SR-71 (4-corners)	same	2020		160.0	160.0				160.0
137	SR-133 ETC	I-5 to SR-241/SR-133 Interchange	Add 1 MF lane each direction per SCAG/TCA M0U	add	2015		94.9	94.9				94.9
138	SR-241 ETC	SR-91 to SR-133/SR-241 Interchange	Add 1 MF lane each direction per SCAG/TCA MOU	same	2015		143.1	143.1				143.1
139	SR-241 FTC	From Oso Pkwy to ETC	Add 1 MF each direction plus climbing/aux per SCAG/TCA MOU	same	2010		138.5	138.5				138.5
140	SR-241 FTC-S	Pico to Oso Pkwy	2 MF Each Direction - Build Out FTC-S	same	2020		200.0	200.0				200.0
141	SR-261 ETC	Walnut to SR-241/261 Interchange	Add 1 MF lane each direction per SCAG/TCA M0U	Add	2015		103.0	103.0				103.0

2002 OCTA Long-Range Transportation Plan Balanced Plan
In 2002 Dollars, In Millions

Ref	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
	HOV Improvements											
142	I-5 at Gene Autry Way	I-5 North @ Gene Autry	Extend bridge to Haster (city funds)	clarify	2010		17.0	17.0				17.0
143	I-5 NB/SB	Coast Hwy to Pico	Add one HOV lane each direction	same	2020	70.0		70.0				70.0
144	SR-22/I-405	HOV to HOV	Add direct HOV connectors between freeways	change date	2020	75.0		75.0				75.0
145	I-405/I-605	HOV to HOV	Add direct HOV connectors between freeways	change date	2020	12.6	92.4	105.0				105.0
146	SR-22/I-5	HOV to HOV	Add direct HOV connectors between freeways	delete	delete	delete	delete	delete	delete	delete	delete	delete
147	SR-22/SR-55	HOV to HOV	Add direct HOV connectors between freeways	delete	delete	delete	delete	delete	delete	delete	delete	delete
148	I-405 at Von Karman	at Von Karman	Add drop ramp	same	2020	50.0		50.0				50.0
	Other Freeway											
149	Motorist Services	Countywide	Freeway Service Patrol & Callbox Program	clarify	2030				150.8		150.8	150.8
150	Soundwalls	Countywide	Invest in freeway soundwalls	add	ongoing	87.0		87.0				87.0
151	Highway O&M	Countywide	2/3 of SHOPP less programmed SHOPP (Balance chokepoints)	clarify	ongoing					497.5	497.5	497.5
		Total Freeway/Toll Road/Chokepoints Balanced				**1,025.9**	**1,594.6**	**2,620.5**	**150.8**	**497.5**	**648.3**	**3,268.8**
	RTP Arterials & Grade Crossings											
152	17th Street	In Costa Mesa, Newport to Irvine Blvd	Intersection Improvements	modify	2003		2.2	2.2				2.2
153	Adams Ave	Beach Blvd to Harbor	Smart Street Improvements	modify	2025	7.2	14.3	21.5				21.5
154	Alton Parkway	County, Irvine Blvd to Commercentre Dr	Alton extension	change	2004		14.0	14.0				14.0
155	Barranca Parkway	In Irvine, Redhill to Jamboree	Widen Barranca from 6 to 8 lanes	same	2006		1.5	1.5				1.5
156	Bolsa Ave/first St	Bolsa Chica to I-5	Smart Street Improvements	modify	2020	20.8	41.7	62.5				62.5
157	Bolsa Chica @ I-405	Overcrossing	Widen Overcrossing to accommodate future Valley View Smart Street traffic	add	2005		3.0	3.0				3.0
158	Bristol Street	In Costa Mesa, Baker to I-405	Widen to provide 7 lanes (4 NB)	add	2012		2.7	2.7				2.7

2002 OCTA Long-Range Transportation Plan Balanced Plan
In 2002 Dollars, In Millions

Ref	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
159	Cabot Rd Bridge	In Laguna Niguel at Cabot Rd-Bridge to Camino Cap	Construct Cabot Road bridge to Camino Capistrano.	modify	2005		7.0	7.0				7.0
160	Crown Valley	PCH to Foothill TC	Smart Street Improvements	modify	2020	18.3	36.7	55.0				55.0
161	Edwards Street	In Westminster, Overcrossing widening	Widen Overcrossing	2008	add		2.5	2.5				2.5
161	El Toro Road	Laguna Cyn Rd to Foothill TC	Smart Street Improvements	change date	2020	18.3	36.7	55.0				55.0
162	El Toro Road	Laguna Cyn Rd to Foothill TC	Smart Street Improvements	change date	2020	18.3	36.7	55.0				55.0
162a	El Toro Road	In Laguna Woods, El Toro to Paseo de Valencia to I-5	Increase left turn capacity of NE bound El Toro Rd to Paseo de Valencia and add 2nd left turn lane at intersection	modify	2020		0.8	0.8				0.8
162b	El Toro Road	In Laguna Woods, El Toro Road from Alison Creek Road to Canyon Hills Drive	Ad third southbound lane	add	2020		27.5	27.5				27.5
163	Goldenwest @ I-405	In Westminster, Overcrossing widening	Widen Goldenwest overcrossing at I-405	add	2004		3.5	3.5				3.5
164	Harbor Blvd	In Garden Grove, I-5 to I-405	Smart Street Widening from 4 to 6 lanes, Operational Improvements	change date	2006		6.0	6.0				6.0
165	Harbor Boulevard	Imperial Hwy to SR-55	Gap Closure Smart Street Improvements	change date	2020	19.6	39.1	58.7				58.7
166	Irvine Blvd/Trabuco	El Toro Road to SR-55	Smart Street Improvements	modify	2020	22.5	45.0	67.5				67.5
167	Jamboree	Irvine Boulevard to SR-73	Smart Street Improvements	modify	2020	12.8	25.7	38.5				38.5
168	Katella Avenue	I-605 to SR-55	Balance of Smart Street Improvements (not already programmed in RTIP) I-5 to SR-55	add	2020	8.3	16.6	25.0				25.0
169	Laguna Canyon Rd (SR-133)	PCH to I-405	Smart Street Improvements	modify	2020	13.3	26.7	40.0				40.0
170	La Paz Road	Cabot to Pradera Drive	Upgrade from primary to major	add	2015	7.5	7.5	15.0				15.0
171	Lincoln Avenue	State College to Sunkist	Widen from 4 to 6 lanes	add	2005	0.6	0.6	1.2				1.2
172	Moulton Parkway	Main St Santa Ana to PCH	Edinger, Moulton, Street of Golden Lantern - Balance Smart Street Improvements	add	2020	23.6	47.2	70.8				70.8
172a	Moulton Parkway	In Laguna Woods from Via Campo Verde to Santa Maria	Add dual left turn lanes on El Toro Road at Moulton Parkway, add bike lanes and sidewalks	add	2005		6.0	6.0				6.0
173	Newland Street @ I-405	Overcrossing	Widen Newland Overcrossing	add	2004		4.0	4.0				4.0
174	Newport Blvd.	In Costa Mesa, 19th St to 17th St	Widen to 8 lanes (city project)	modify	2010		5.1	5.1				5.1
175	Newport Blvd	19th St to Finley	Smart Street Improvements	modify	2020	3.3	6.7	10.0				10.0

2002 OCTA Long-Range Transportation Plan Balanced Plan
In 2002 Dollars, In Millions

Ref	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
176	Newport Avenue	Current terminus to Edinger	In Tustin, Phase II - Newport Ave Extension to Edinger including railroad underpass and widening Newport Ave (3 lane each direction) from Tustin Grove Dr to Myrtle Ave.	add	2005	0.2	26.5	26.7				26.7
177	Orangethorpe Ave	Beach Blvd to Imperial Hwy	Smart Street Improvements	change date	2020	22.8	45.7	68.5				68.5
178	Pacific Coast Hwy	San Juan Creek to Warner	Smart Street Improvements	modify	2020	49.8	99.7	149.5				149.5
179	Pacific Electric Arterial	SR-22 to downtown Santa Ana	Add 4-lane limited access express (SR-22/WOCC Project)	delete	delete	delete	delete	delete	delete	delete	delete	delete
179a	State College	SR-91 to Imperial Hwy	Smart Street Improvements	add	2020	7.5	15.0	22.5				22.5
180	Tustin Ave/Rose Dr	SR-91 to Imperial Hwy	Smart Street Improvements	modify	2020	7.0	14.0	21.0				21.0
180a	Valencia North Loop Road and Armstrong Ave within MCAS Tustin	In Tustin, Valencia North Loop Rd to Redhill Avenue to Tustin Ranch Rd, Armstrong Ave from Barranca Pkwy to Valencia North Loop Rd and West Connector from Valencia North Loop Rd to Edinger Ave	Construct road, utilities for development of former MCAS Tustin	add	2020		27.5	27.5				27.5
181	Valley View	SR-22 to SR-91	Smart Street Improvements	modify	2020	16.7	33.4	50.1				50.1
182	Warner Avenue	Harbor Blvd to PCH	Smart Street Improvements	modify	2020	15.3	30.7	46.0				46.0
182a	SR-74/Ortega Hwy	I-5 to Antonio Pkwy	Widen to 4 lanes	modify	2030	10.0		10.0				10.0
183	Measure M Regional/Local Projects	Countywide	Measure M + MOE 2007-2011	clarify	ongoing	355.7	276.8	632.5				632.5
184	Countywide	Countywide	RSTP Projects	clarify	ongoing	330.5		330.5	330.5		330.5	661.0
185	Countywide	Countywide	TCRP Subventions, Prop 42 City/County	clarify	ongoing		390.5	390.5		390.5	390.5	781.0
186	Other Street Projects/Operations & Maintenance	Countywide	Gas Tax Subventions for Street Projects/Maintenance (assume 1/2 capital, 1/2 O&M)	clarify	ongoing		680.0	680.0		680.0	680.0	1,360.0
187	Countywide	Countywide	HBRR/HES Projects	clarify funding	ongoing					151.4	151.4	151.4

2002 OCTA Long-Range Transportation Plan Balanced Plan
In 2002 Dollars, In Millions

Ref	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
	Grade Crossings											
188	OnTrak - Track Lowering	Orangethorpe Corridor	Placentia Avenue to Kellogg Drive. Accommodates crossings at Kellogg, Richfield, Van Buren, Kraemer, Tustin/Rose, Orangethorpe	modify	2010		400.0	400.0				400.0
189	Lakeview Ave	Orangethorpe Corridor	Lakeview in Placentia	add	2020	38.0		38.0				38.0
190	State College	Orangethorpe Corridor	State College Avenue in Fullerton	same	2015		30.0	30.0				30.0
191	Raymond Avenue	Orangethorpe Corridor	Raymond Avenue in Fullerton	add	2020	28.0		28.0				28.0
192	Acacia Avenue	Orangethorpe Corridor	Acacia Avenue in Fullerton	add	2020	22.0		22.0				22.0
193	Ball Road	Orange/Olive Corridor	Ball Road in Anaheim	same	2020		35.0	35.0				35.0
194	Grand Avenue	Orange/Olive Corridor	Grand Avenue in Santa Ana, Overcrossing/Viaduct	same	2020		17.3	17.3				17.3
195	La Veta	Orange/Olive Corridor	La Veta in Orange, Undercrossing	same	2020	14.0		14.0				14.0
196	17th Street	Orange/Olive Corridor	17th Street in Santa Ana, Undercrossing	same	2020	18.0		18.0				18.0
197	Red Hill	Orange/Olive Corridor	Redhill Avenue in Tustin	same	2020	30.5		30.5				30.5
198	State College	Orange/Olive Corridor	State College in Anaheim, Undercrossing	same	2020	19.1		19.1				19.1
199	Santa Ana Blvd	Orange/Olive Corridor	Santa Ana Boulevard in Santa Ana, Undercrossing	same	2020	15.4		15.4				15.4
200	4th Street	Orange/Olive Corridor	4th Street in Santa Ana, Lane Widening	same	2020	3.0		3.0				3.0
201	Collins Ave	Orange/Olive Corridor	Collins Avenue in Orange, Lane Widening	same	2020	4.0		4.0				4.0
202	Tustin Ave	Orange/Olive Corridor	Tustin Avenue in Anaheim, Undercrossing	same	2020	23.2		23.2				23.2
203	Walnut Ave	Orange/Olive Corridor	Walnut Avenue in Orange, Lane Widening	same	2020	3.7		3.7				3.7
204	Sand Canyon	Orange/Olive Corridor	In Irvine, undercrossing construction	add	2020	17.2		17.2				17.2
205	Other Grade Crossings	Countywide	Countywide	delete	delete	delete		0.0				0.0
		Arterial & Grade Crossing Balanced Plan				**1,246.0**	**2,589.1**	**3,835.1**	**330.5**	**1,221.9**	**1,552.4**	**5,387.5**

2002 OCTA Long-Range Transportation Plan Balanced Plan
In 2002 Dollars, In Millions

Ref	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
	Bus Transit											
206	RTP - Fixed Route - Add'l OCTA Local Bus	Countywide	Expand local service to 10-minute headways in the core of the county. Local service expands to 2.5 million annual vsh by 2030)	clarify	2010-2030	546.4		546.4	1,346.4		1,346.4	1,892.8
207	RTP - Add'l OCTA Express Bus	Intercounty & Intracounty	Includes the following new services: Industry to Anaheim Resort (2004), 4 routes between Orange-Riverside (2003), Rancho Santa Margarita to Irvine Transportation Center (2010), Long Beach to South Coast Metro (2004), San Clemente to South Coast Metro (2004), Long Beach to Orange (2007), Laguna Hills to Anaheim (2004), other Express to be determined (2010-2030)	clarify	Varies to 2030	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)
208	RTP - Add'l Rail Feeder Service	Countywide	Adds Station Link service to an estimated annual 40,000 vsh	clarify	2003-2030	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)
209	RTP - Add'l Bus Rapid Transit	BRT Lite on arterials: Harbor, Westminster, Katella, Edinger, Beach, La Palma	Adds Bus Rapid Transit in mixed traffic with signal priority on the following lines: Harbor Boulevard (28 miles - 2003), Westminster (14 miles - 2004), Katella Avenue (11 miles - 2012), Edinger Boulevard (10 miles - 2012), Beach Boulevard (10 miles - 2012), La Palma (9 miles - 2025), Full to Brea (5 miles - 2025)	clarify	2003-2030	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)	Costs included above (in # 206)
210	RTP - Add'l Paratransit	Countywide	Expand specialized transit to meet ADA mandates from .400 million annual vsh to .700 million by 2030 (Includes bus base)	clarify	2002-2030	41.8		41.8	232.8		232.8	274.6
210A	RTP - Senior Mobility Program	Countywide	Provide community based senior transportation services	add	2002-2030				68.0	25.5	93.5	93.5
211	Bus Stop Accessibility Program	Countywide	Invest in making bus stops accessible for people with disabilities	same	2002-2011	10.0		10.0				10.0
			Balanced Plan Bus			**598.2**	**0.0**	**598.2**	**1,647.3**	**25.5**	**1,672.8**	**2,270.9**

2002 OCTA Long-Range Transportation Plan Balanced Plan
In 2002 Dollars, In Millions

Ref	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
	Rail Transit											
212	Orange & IEOC Line & Riverside-Fullerton LA Line	Lossan and Orange/Olive Corridors - O&M / other improvements	Orange Line - Increase service to achieve 30 daily and IEOC to 21 daily trains....91 Line grows to 21 daily trips	same	2002-2030	161.0	34.4	195.4	70.9		70.9	266.3
213	Intracounty Metrolink	Laguna Niguel to Fullerton	Plan for midday service - not included in costs	new	tbd	tbd						TBD
214	Track La Mirada Basta	La Mirada	DT Junction to La Mirada Triple Track	change date	2004	costs included in project #212 above						0.0
215	Fullerton Parking Structure	Fullerton	Expand Parking Fullerton Parking Lot	clarify	2003	costs included in project #212 above						0.0
216	Yorba Linda Metrolink Station	Yorba Linda	Construct Yorba Linda Metrolink Station	change date/clarify	2007	costs included in project #100 above						0.0
217	Anaheim Stadium	Anaheim Stadium	Other Capital Improvements including parking structures ($72), platform extensions ($1.2)	add	tbd		73.2	73.2				73.2
218	CenterLine Extensions	Alignments TBD	Extend CenterLine north, west or south - For RTP modeling: extend CenterLine to Santa Ana College	tbd	2012-2030	385.0	385.0	770.0				770.0
			Total Balanced Plan Rail			**546.0**	**492.6**	**1,038.6**	**70.9**	**0.0**	**70.9**	**1,109.5**

2002 OCTA Long-Range Transportation Plan Balanced Plan
In 2002 Dollars, In Millions

Ref	Route/Direction	Location	Description	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
						OCTA	Others	Total Cap	OCTA	Others	Total O/M	
	Other											
219	Regional Rideshare	Countywide	Invest in transportation demand management programs	same	ongoing				27.0		27.0	27.0
220	Bicycle/Non-Motorized	Countywide	Build the Commuter Bikeways Strategic Plan	same	ongoing	115.0		115.0				115.0
221	Intelligent Trans Systems	Countywide	Invest in ITS Programs	same	ongoing	29.0		29.0				29.0
222	Project Development	Countywide	Project Development	add	ongoing				84.0		84.0	84.0
223	Other Transit	Santa Ana Intermodal Center	Construct Intermodal Center in Santa Ana	add	2020	50.0		50.0				50.0
224	Other TEA	Countywide	Transportation Enhancement Activities	add	ongoing	45.2		45.2				45.2
			Total Other			**239.2**	**0.0**	**239.2**	**111.0**	**0.0**	**111.0**	**350.2**
		Total Balanced Plan Beyond Baseline				**3,655.3**	**4,676.3**	**8,331.6**	**2,310.5**	**1,744.9**	**4,055.3**	**12,386.9**
			Total Baseline Program			**3,324.9**	**2,166.3**	**5,491.3**	**5,182.3**	**1.2**	**5,183.5**	**10,674.8**
	Debt					**911.3**		**911.3**	**363.4**		**363.4**	**1,274.7**
	Total Balanced Plan					**7,891.5**	**6,842.6**	**14,734.1**	**7,856.2**	**1,746.1**	**9,602.2**	**24,336.4**

Other - Long Range Corridors for Further Study (no identified funding)

High Speed Rail	Anaheim to Ontario Airport	Study feasibility of adding high speed rail between Anaheim and Ontario Airport	add	tbd								tbd

OCTA 2002 Long-Range Transportation Plan By Mode
2002 Dollars, In Millions

Mode	Tier I Baseline	Tier II Financially Constrained	Subtotal	Debt	Total Balanced Plan	% of Total
Freeways	1,213.7	1,732.4	2,946.1	811.5	3,757.6	
Toll Roads	740.4	1,038.9	1,779.3		1,779.3	
Freeway O&M	1.2	497.5	498.7		498.7	
Subtotal Freeways & Toll Roads	1,955.3	3,268.8	5,224.1	811.5	6,035.6	25%
Arterials	930.9	4,669.1	5,600.0	3.6	5,603.6	
Grade Crossings	108.7	718.4	827.1		827.1	
Subtotal Arterials & Grade Crossings	1,039.6	5,387.5	6,427.1	3.6	6,430.7	27%
Bus Transit	5,778.9	2,270.9	8,049.8	19.6	8,069.5	
Subtotal Bus Transit	5,778.9	2,270.9	8,049.8	19.6	8,069.5	33%
Rail - Metrolink	441.3	339.5	780.7	76.6	857.4	
Rail - CenterLine 11.4 mile line	1,458.8		1,458.8		1,458.8	
Rail - CenterLine Extension(s)		770.0	770.0		770.0	
Subtotal Rail Transit	1,900.0	1,109.5	3,009.5	76.6	3,086.1	13%
Subtotal Other	0.9	350.2	351.1	363.4	714.5	3%
Total	**10,674.8**	**12,386.9**	**23,061.7**	**1,274.7**	**24,336.4**	100%

OCTA 2002 Long-Range Transportation Plan
Preferred Plan Project List

OCTA 2002 Long-Range Transportation Plan Preferred Plans & Options

Mode/Description	Preferred Plan - Financially Unconstrained	Est - Millions 2002 $	Cost OCTA (Millions)	Cost Others /Notes
I-5	Interchange improvements:			
	I-5/SR-55 interchange (ultimate)	(costs w/chokepoints)		
	I-5/SR-57/SR-22 interchange	(costs w/chokepoints)		
	HOV Chokepoint SR-55 to SR-57	40	40	
SR-55	HOV Chokepoint Dyer to I-5	45	45	
SR-91	91 Congestion Relief Plan (over constrained):			
	add 4 express GP lanes Riv line to SR-55 (structure) with access to/from Imperial Hwy and SR-55	1660	1000	Federal Discretionary $660
	add 2 lanes SR-55 to I-5	225	225	
	Interchange improve at SR-91/55	(costs w/chokepoints)		
I-405	I-405 Congestion Relief Plan			
	Add 2 more lanes SR-73 to Beach (total 4 at grade with balanced plan) 7 miles	425	425	Over and above balance plan costs
	Punch through aux lanes SB direction I-605 to Beach	50	50	
	Invest in access to and from I-405	50	50	
Chokepoints	Countywide Chokepoints/Interchange Improvement Program	500	500	
Toll Roads				
SR-73 SJHTC	Shadow tolls/subsidies for HOV 3+ (all facilities)	unknown		
Arterials & Grade Crossings				
Streets & Roads Capacity	MPAH Buildout (829 lane miles) or comparable alts with focus on potential deficiency areas idenfied in MPAH Assessment	1,000	1000	Cost assumes available funding can pay for 1/2 of MPAH buildout - balance is unfunded.

OCTA 2002 Long-Range Transportation Plan Preferred Plans & Options

Mode/Description	Preferred Plan - Financially Unconstrained	Est - Millions 2002 $	Cost OCTA (Millions)	Cost Others /Notes
Maintenance	Continue turnback funding to help meet street maintenance needs.	600	600	
Smart Streets	Additional Smart Streets - priority corridors La Palma, Westminster, State College, Grand, Tustin	200	200	
Operational Improvements	Regional Interchange/Intersection/Signal Program	500	500	$25 m per year @ 20 yrs
Bus Transit				
Fixed Route	Expand to 1.04 vsh/capita by 2020	1652	1652	Peer group avg investment
Rapid Bus	Higher Level Rapid Bus - portions in dedicated rights of way where feasible - faster operating speeds	500	250	Cost assumes 1/2 paid federal ($250)
Specialized Transit	Add funding for Senior Mobility program	100	100	Doubles program
Rail Transit				
Commuter Rail	For ongoing operations	300	300	
Metrolink Stations	Placentia Metrolink Station	10	10	
Light Rail Transit	CenterLine extension	900	450	Assume balance is federal ($450)
Other				
TLC	Partner to encourage transit-oriented development/redevelopment projects - include pedestrian / safety elements	100	100	
	Total	8,857	7,497	

Modifications to
Orange County 2004 Regional Transportation Plan Nominations

Modified Description as per Caltrans													
Ref #	Route/Dir	Location	Description	Changes	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
							OCTA	Other	Total Cap	OCTA	Other	Total O/M	
115	SR-55 SB	SB Dyer to MacArthur	Aux lane	Changed NB to SB	modify	2010		1.3	1.3				1.3
124	SR-91 EB/WB	EB truck scales to Imperial	Add storage lane at truck weigh in motion station	Changed to both directions (was only EB)	same	2007	8.0		8.0				8.0

Projects Added													
Ref #	Route/Dir	Location	Description	Changes	Change 2001 RTP	Year	Capital in Millions $			O&M in Millions $			Total Project
							OCTA	Other	Total Cap	OCTA	Other	Total O/M	
109a	I-5 SB	Stonehill Drive in San Juan Capistrano	Ramp improvements	Project added	add	2010		7.0	7.0				7.0
162a	El Toro Road	In Laguna Woods, El Toro Road/Paseo de Valencia to I-5	Increase left turn capacity of NE bound El Toro Rd to Paseo de Valencia and add 2nd left turn lane at intersection	Project added	modify	2004		0.8	0.8				0.8
180a	Valencia North Loop Road and Armstrong Ave within MCAS Tustin	In Tustin, Valencia North Loop Rd from Redhill Ave to Tustin Ranch Rd, Armstrong Ave from Barranca Pkwy to Valencia North Loop Rd and West Connector from Valencia North Loop Rd to Edinger Ave	Construct road, utilities for development of former MCAS Tustin	Project added	add	2020		27.5	27.5				27.5
182a	SR-74/Ortega Hwy	I-5 to Antonio Pkwy	Widen to 4 lanes	Project added	modify	2030	10.0		10.0				10.0
162b	El Toro Road	In Laguna Woods, El Toro Road from Aliso Creek Road to Canyon Hills Drive	Add 3rd southbound lane	Project added	add	2004		0.7	0.7				0.7
172a	Moulton Parkway	In Laguna Woods, Moulton Parkway from Via Campo Verde to Santa Maria	Add dual left turn lanes on El Toro at Moulton Parkway, add bike lanes and sidewalks.	Project added	add	2005		6.0	6.0				6.0

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City of Santa Clarita

July 18, 2003

Mr. Ted Harris, Regional Environmental Planner
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, California 90017-3435

Re: City of Santa Clarita Response to the Notice of Preparation for the Program EIR for the 2004 Regional Transportation Plan (RTP)

Dear Mr. Harris:

Thank you for the opportunity to review and respond to the Notice of Preparation (NOP) for the Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP), prepared by the Southern California Association of Governments (SCAG). This package includes the City of Santa Clarita's initial comments on the socioeconomic trend projection alternatives to be analyzed in the PEIR. Please note that the City will submit additional comments once the project description is finalized and numeric projections are made available for each alternative to allow for a complete review.

Introduction

As you know, the City of Santa Clarita has actively participated in the socioeconomic trend projection process, representing the City at the Forecasting Technical Task Force (FTTF) meetings, providing a comprehensive response in November 2002 to SCAG's request for local input, attending agency and public meetings throughout the region regarding the proposed growth scenarios, and regularly communicating with SCAG staff and elected officials serving on SCAG committees. City staff is now participating in the Plans and Programs Technical Advisory Committee, which is charged with developing technical recommendations to the policy committees regarding the RTP and the growth forecast processes. Throughout this process, the City has coordinated closely with other North County staff and community leaders from the cities of Palmdale and Lancaster, as well as Los Angeles County.

Since Fall 2002, the City of Santa Clarita has raised a number of issues and concerns relating to the growth projection development process, the characteristics and impacts of the proposed growth alternatives, and, most recently, the CEQA process launched in June 2003. These concerns and issues are detailed as follows.

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COMMENTS ON SCAG GROWTH PROJECTION PROCESS

1. **The initiation of the CEQA process is premature given that the project description provided in the Notice of Preparation is incomplete, unavailable for public review, and still in the process of being finalized by SCAG staff.**

The growth scenario alternatives presented in the Notice of Preparation are described as "initial alternatives" that "will change and mature as the 2004 RTP planning process proceeds." Because these four initial alternatives continue to be a moving target, this Notice of Preparation does not adequately provide an opportunity for meaningful agency and public input to guide the CEQA evaluation. Agency input and direction at this stage of the planning process is critical given the size of the planning area and the scope of the environmental analysis. Clearly, the nature of the comments prepared by agencies in the SCAG region is directly tied to the characteristics of each specific growth scenario. The unavailability of the population, household and employment counts for each alternative, combined with the expectation that the alternatives will continue to change, is obstructing agency review and calls to question the integrity of the CEQA process.

SCAG has indicated that five growth alternatives will be further refined during the summer months through committee workshops and additional technical work by SCAG staff. In the July 8, 2003, Plans and Programs TAC meeting, the City learned that these alternatives may or may not be synonymous with the four initial alternatives presented in the Notice of Preparation. It appears that two processes – the development of the RTP growth alternatives and the preparation of the Program EIR evaluating these alternatives - are occurring concurrently when these processes should be conducted consecutively. There appears to be a major disconnect between these two processes where even the number of alternatives to be refined and evaluated is inconsistent. This has created confusion for agencies that wish to provide input to SCAG, and has raised a number of questions regarding the validity of the CEQA process. The City recognizes that SCAG has initiated the CEQA process in order to meet a Spring 2004 state-imposed deadline, however, the fact that the project description remains undetermined shows that SCAG has prematurely launched the CEQA process.

2. **The City of Santa Clarita requests that the Notice of Preparation circulation period be extended to allow for agency review on the population, household and employment projections for each growth alternative to be evaluated in the PEIR.**

At the July 8, 2003, Plans and Programs TAC meeting, the City requested that SCAG extend the NOP circulation period to allow for agency comment on the growth projections for each alternative, once they are finalized. Agency comments

specific to the calculations of population, households and employment are essential to the CEQA process. This will ensure that agency concerns and issues regarding each alternative are captured early on the process and addressed in the environmental analysis.

3. **The City of Santa Clarita requests that a scoping meeting for agencies in the SCAG region be held during the circulation period for the Notice of Preparation to allow for agency discussion and input on the proposed growth alternatives.**

Given the complexity of the 2004 RTP alternatives and the future implications for the SCAG region, an agency scoping meeting should be scheduled by SCAG during the Notice of Preparation circulation period. Although not mandated by CEQA, a scoping meeting is critical to set the stage for the CEQA process and ensure that all major issues and concerns are identified early in the environmental impact evaluation process.

4. **The process to develop, refine, advance and evaluate growth projection alternatives has changed, resulting in the advancement of two policy alternatives with no technical basis.**

As previously mentioned, the City of Santa Clarita, as well as other North County representatives, participated in SCAG's Forecasting Technical Task Force (FTTF). This task force was charged with developing evaluation criteria and technically critiquing three main growth projections - the SCAG Trend Projection, the Local Input Projection, and the Technically Balanced Growth Projection (TBGP). Additional variations on these three main growth scenarios were also developed and the technical merits of each were considered by the task force for recommendation to the CEHD. Several months of FTTF discussion resulted in the development of seven growth projections.

On two occasions, the FTTF voted on a preferred growth alternative, ultimately recommending the TBGP 2 Alternative as the preferred alternative, with the Trend/Local Input A Alternative as a "strongly support" runner-up. Both alternatives ensure that reasonable relationships between population, housing and employment are maintained at the regional level, with consideration for the input received from the local governments. However, neither the main growth projections nor FTTF's two preferred variations are included or even mentioned in the Notice of Preparation for the PEIR. Instead, two "bookend" scenarios were introduced by SCAG staff to the CEHD, and subsequently advanced for evaluation in the PEIR. It appears that the technical analysis and input of the FTTF was overlooked for two policy alternatives that have no technical basis. SCAG has not only shown a disregard for a year-long process and the efforts of the FTTF, but is jeopardizing the validity of the SCAG RTP by proceeding with growth alternatives

that do not satisfy the basic evaluation criteria developed by SCAG staff and validated by the FTTF.

5. The COMPASS growth visioning workshop series was limited in scope and did not adequately obtain public input on growth alternatives.

Earlier in 2003, SCAG staff indicated that a series of growth visioning workshops would be held throughout the region to assist in the development of the growth projection alternatives. The City supports the COMPASS mission to create a vision for the region and had hoped that this work effort would be integrated into the RTP process, becoming a driver for the development of the growth alternatives. Although one workshop was held in the North Los Angeles County Subregion, it was poorly advertised and, as a result, attended by only a handful of individuals. Also, because the workshop was held in the Antelope Valley, over 30 miles from the City of Santa Clarita, there was no representation from the Santa Clarita Valley. Shortly following the Antelope Valley workshop, the City learned that the COMPASS workshop series had been suspended due to SCAG resource constraints. Without the COMPASS growth visioning workshop series, the RTP growth alternatives process lacks a public forum to facilitate a dialogue about the land use and transportation options for the region.

6. Local agency input was not considered in development of the 2004 RTP alternatives as identified in the Notice of Preparation.

In November 2002, SCAG solicited input from its membership on an initial set of growth projections. Local jurisdictions throughout the SCAG region were asked to assess the Trend Projection comprised of population, household and employment totals in five-year increments from 2010-2030. The purpose of this work effort was to assemble a growth projection based on local build-out calculations, local land use and transportation plans, demographic trends, redevelopment opportunities, environmental constraints and infrastructure limitations. The local input process provided each municipality with an opportunity to share its best guess for how their community would grow and change over the next 25 years. In this way, local planning predictions could be compared with SCAG's regional perspective to ultimately achieve balance between these often competing viewpoints.

The City of Santa Clarita responded to SCAG's initial projections with a comprehensive package detailing the City's environmental constraints, infrastructure capacity, and local land use policies. This comprehensive response included revised projections and two boxes of supporting documents and graphics to provide a more realistic picture for how the area will grow over the next 25 years. The cover letter, qualitative and quantitative analyses, and list of exhibits are attached to this letter for your reference. These materials provide SCAG with a

local perspective that reflects the uniqueness of the area and provides a realistic snapshot of the growth trends that can be expected to occur.

SCAG's selection of the two "bookend" growth alternatives (PILUT I and II) for analysis in the PEIR discounts the local input solicited and received by SCAG in November 2002. When compared with the City of Santa Clarita projections, the PILUT scenarios conflict with the anticipated population and household build-out totals, ignoring the City's land use policies and requirements, infrastructure plans and capacity constraints, physical and environmental characteristics and other public and social service limitations that were articulated in the City's November 2002 response. In short, these two extreme alternatives do not reflect the SCAG membership's judgment for how the region will grow and, for this reason, should not be treated as the two primary growth alternatives.

COMMENTS ON RTP ALTERNATIVES & ENVIRONMENTAL ISSUES FOR CEQA REVIEW

The majority of the comments and issues identified below are related to PILUT Alternative II, also known as the "5th Ring" Alternative. This alternative presents a worst case scenario for growth, not only for the City of Santa Clarita, but the entire SCAG region.

1. **Because the PILUT alternatives are non-technical and policy based, they offer an unrealistic and infeasible road map for growth in the SCAG region and, therefore, should not be primary alternatives for Regional Council consideration.**

The PILUT growth alternatives present two extreme snapshots of the future. The alternatives offer an "all or nothing" approach to population growth and infrastructure planning, placing the burden of accommodating growth either in an outlying area with limited infrastructure and resources needed to support the population, or in the inner urban core which is already struggling with capacity issues. Even when evaluated on the most general terms, these alternatives do not pass the feasibility test as they conflict with municipal plans for land use and infrastructure, as well as regional transportation agency priorities and funding capabilities. The population, household and employment projection totals, as well as their distribution throughout the region, have no technical basis and appear to be politically driven.

In recent meetings and workshops, SCAG staff has acknowledged that implementation of the "5th Ring" Alternative presents several resource and funding challenges for the North County/High Desert area that would be difficult to overcome. For this reason, the City of Santa Clarita recommends that SCAG abandon the PILUT alternatives as they add no value to the growth forecasting

process and analyze those growth projections that can be technically justified and offer a more balanced distribution of regional growth – including the Technically Balanced Growth Projection and Trend/Local Input alternatives developed during the FTTF review process.

2. Terminology and geographic references to the North Los Angeles County area are unclear.

The terms "North County" and "High Desert" are used interchangeably in presentations and dialogue by SCAG staff and consultants. In addition, the "5th Ring" Alternative has also been referred to as the "North County" Alternative by SCAG staff. This has resulted in further confusion and ambiguity and suggests that SCAG staff is also unclear about where the 1.75 million persons are expected to reside. In addition, three incorporated cities are located within the North County Subregion – the City of Santa Clarita to the south, and the cities of Palmdale and Lancaster to the north in the Antelope Valley. The demographics, infrastructure, land use and character of the Santa Clarita Valley, the Antelope Valley and the High Desert are distinct and will be affected differently by the "5th Ring" Alternative. In SCAG discussions about the "5th Ring" Alternative, there appears to be no distinction of these geographic areas and how they relate to one another. In the environmental analysis, the City requests that the geographic areas affected by the "5th Ring" Alternative be clearly defined and a detailed description provided for each geographic area and community.

In addition, the City requests that SCAG provide a breakdown of the distribution of population, household and employment for the City of Santa Clarita, City of Palmdale, City of Lancaster, and unincorporated Los Angeles County. Is the growth expected to occur evenly throughout the Santa Clarita Valley, Antelope Valley and High Desert, or will SCAG apply a ratio that distributes the growth according to land use, infrastructure and economic factors? Until this information is finalized and released for public review, it is difficult to evaluate the impacts to each jurisdiction.

3. The "5th Ring" growth estimates for the City of Santa Clarita grossly conflict with local projections supported by local and subregional planning programs currently in place.

The "5th Ring" Alternative concentrates future growth in the North Los Angeles County and High Desert areas. The "5th Ring" Alternative places over 689,000 <u>more</u> persons in the North County Subregion by Year 2030 than what the North County originally projected, bringing the total population to 1.75 million. The City of Santa Clarita projects that 226,282 persons will live within its jurisdictional limits in 2030. Assuming that the City takes 21 percent of the North County Subregion's growth (which is consistent with the City's Local Input ratio), the

population count would rise to 367,531 persons – an increase of 141,249 persons beyond the City's expected 2002-2030 growth of 67,982 persons. In short, the "5th Ring" Alternative more than doubles the growth expected within the City's jurisdictional limits by 2030 above that which is already anticipated. The attached Narrative, which was submitted in November 2002 as part of the City's response to the SCAG Socioeconomic Trend Projections, provides an exhaustive discussion of how the City will grow and why the 141,249 person increase is not a plausible growth scenario.

4. **A disconnect exists with SCAG's PILUT alternatives and infrastructure planning and financing managed by the region's transportation agencies, resulting in growth expectations that would create a transportation demand crisis for the North County Subregion if implemented.**

Understanding that SCAG is a planning agency without implementation or funding capabilities, it is critical that the development of growth projections be a collaborative process with regional transportation agencies that set project priorities and allocate funding resources for infrastructure. Placing 1.75 million persons in the North County area while investing infrastructure dollars in other subregions will result in a transportation crisis for critical transportation links serving the entire SCAG region.

As you know, the highway corridors within the North County Subregion provide the primary transportation linkages to the Southern California region from areas to the north and east. Interstate 5 connects the Southern California region to California's Central Valley, runs along the western edge of the Santa Clarita Valley, and merges with SR-14 in the Newhall Pass area just north of the City of Los Angeles. SR-14 traverses the subregion southwest to northeast, providing the primary regional connection between the Santa Clarita Valley and the Antelope Valley. Both of these corridors are major north/south transportation routes to and from the economic centers of the SCAG region. The "5th Ring" Alternative presents a direct threat to the operational effectiveness of these highway corridors, affecting not only the residents and commuters of the subregion, but pass-through freight movement and intra/interstate travel.

5. **The "5th Ring" Alternative cannot be implemented due to infrastructure and funding constraints, water supply limitations and unrealistic employment projections in the North County/High Desert area and is, therefore, fatally flawed.**

As stated at the SCAG meeting held in Apple Valley in May 2003, the "5th Ring" Alternative poses several obstacles to implementation in the North County/High Desert area. The availability of water is a key issue identified by both SCAG and the local jurisdictions within the North County as a factor that would inhibit

growth. Also, SCAG indicated that although additional employment opportunities would be encouraged in the North County/High Desert areas, there would continue to be a disconnect between the types of jobs offered and the socioeconomic composition of the local work force. In the Apple Valley meeting, SCAG staff indicated that this imbalance would result in even higher commuter traffic volumes to the Los Angeles Basin, requiring the Antelope Valley Freeway to be augmented to 12 lanes. The "5th Ring" Alternative, therefore, fails to create a community with a balanced jobs-housing ratio that would function independently of the greater Los Angeles area.

Probably the greatest obstacle to realization of the "5th Ring" Alternative is the lack of transportation infrastructure and impacts to existing facilities. At recent presentations made by SCAG staff and consultants at the Plans & Programs TAC, it was reported that Los Angeles County is already in a deficit to meet baseline plus Tier 2 projects. The "5th Ring" Alternative only exacerbates this shortfall. The "5th Ring" Alternative, when compared to the 2000 Base Year and five other Year 2030 alternatives, ranked the worst in terms of mobility (5.5 million vehicle hours of delay) and showed the lowest PM peak average speed. From a transportation performance standpoint, the "5th Ring" Alternative fails.

6. The transportation needs of the "5th Ring" Alternative exceed the infrastructure build-out capacity planned in the Santa Clarita Valley.

The City of Santa Clarita and the County of Los Angeles currently administer five Major Bridge and Thoroughfare (B&T) Districts in the Santa Clarita Valley. The District Reports (nexus studies) have recently been updated to collect sufficient fees from new development to provide the transportation infrastructure necessary to support the traffic generated by new development. The anticipated development included in these reports was developed in a cooperative and comprehensive process with all major development stakeholders in the Santa Clarita Valley. Any additional growth programmed for the Valley above what is currently included in the B&T District reports would exceed the capacity of the Valley's transportation infrastructure at system build-out.

7. In addition to transportation impacts, the PEIR will need to evaluate the full range of environmental and social impacts associated with the implementation of the "5th Ring" Alternative.

The attached Narrative to the Socioeconomic Trend Projection provides a comprehensive discussion about the City of Santa Clarita's land use and environmental characteristics. This information can be used in the CEQA analysis, especially in the evaluation of the "5th Ring" Alternative. Other issue areas that should be addressed include air quality, water supply, noise, parkland and

recreation, open space, police services, fire and emergency services, and medical services.

In conclusion, the City understands that local land use and transportation planning must be balanced and weighed with the needs of the SCAG region. However, without a direct linkage between planned infrastructure improvements and the growth scenarios, this forecasting effort will be unsuccessful. As SCAG continues with the RTP process, it is important that sound comprehensive planning be employed to find the right balance of reality, technical justification and policy, recognizing the limitations that exist at the local and regional levels, and factors that would affect implementation of the selected growth alternative. The City looks forward to its continued participation in both the 2004 Regional Transportation Plan growth projection process and the CEQA process. If you should have any questions, comments or require additional materials, please contact me or Lisa Hardy, Senior Planner, at (661) 255-4949 / lhardy@santa-clarita.com.

Sincerely,

Jeffrey J. Lambert, AICP
Director of Planning & Building Services

Enclosures

cc: Mayor Smyth and City Councilmembers
Chair Winsman and Planning Commissioners
Mayor Bev Perry, City of Brea, President of SCAG Regional Council
Mayor William "Bill" Alexander, City of Rancho Cucamonga, Chairman of SCAG Community, Economic & Human Development Committee
Vice-Mayor Harry Baldwin, City of San Gabriel, Chairman of SCAG Transportation and Communications Committee
Kenneth Pulskamp, City Manager
Michael Murphy, Intergovernmental Relations Officer
Vincent P. Bertoni, Planning Manager
Mike Haviland, Marketing & Economic Development Manager
Mark Yamarone, Capital Plan and Programs Administrator
Mark Pisano, Executive Director, SCAG
Hasan Ikhrata, Director of Planning & Policy, SCAG
Councilmember Michael Dispenza, City of Palmdale
Laurie Lile, Director of Planning, City of Palmdale
Mike Behen, Senior Transportation Planner, City of Palmdale

Brian Ludicke, Community Development Director, City of Lancaster
David Ledbetter, Principal Planner, City of Lancaster
Paul Novak, Deputy, Supervisor Antonovich's Office, 5th District
Millie Jones, Senior Field Deputy, Supervisor Antonovich's Office, 5th District
Jim Hartl, Los Angeles County Director of Regional Planning
Andy Malakates, Section Head, Los Angeles County Dept. of Regional Planning

JJL:LMH
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City Of Loma Linda

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From The Department Of Community Development

July 23, 2003

Mr. Ted Harris
Regional Environmental Planner
Southern California Association of Governments (SCAG)
818 West Seventh Street, 12th Floor
Los Angeles, California 90017-3435

RE: Notice of Preparation of a Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP)

Dear Mr. Harris:

Thank you for the opportunity to review the above referenced document. We have no comments at this time; however, we anticipate reviewing the draft PEIR and draft RTP documents and will provide detailed comments pending our review of those documents.

Sincerely,

Deborah Woldruff

Deborah Woldruff, AICP
Director

cc: T. Jarb Thaipejr, Public Works Director/City Engineer
Lloyd Zola, LSA Associates
Kevin Fincher, LSA Associates

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PALMDALE

a place to call home

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Mayor

MIKE DISPENZA
Mayor Pro Tem

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Councilmember

JAMES A. "JIM" ROOT
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September 10, 2003

Mr. Mark Pisano
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

RE: 5th Ring Growth Projections

Dear Mr. Pisano:

On behalf of the members of the City Council and the City staff, I would like to thank you and your staff for meeting with us on June 19, 2003 to provide insight into SCAG's 5th Ring Growth projection. Following our meeting, I asked Palmdale staff members to evaluate the 5th Ring projection and determine its feasibility, and its potential impacts and/or benefits to our community. After this evaluation, we have determined that the projected growth set forward in the 5th Ring alternative would have substantial detrimental impacts on our community, requiring extensive modifications to our General Plan. It would have a devastating impact on the quality of life for our citizens and would require the commitment of billions of dollars in infrastructure costs to support the additional residents that would live in Palmdale. Therefore, based on these negative consequences, the City of Palmdale strongly opposes the continued consideration of this alternative in the 2004 RTP Environmental Impact Report analysis and the 2006 Regional Housing Needs Assessment.

The following issues will be discussed with respect to the City's objections to this alternative: 1) the projection is not credible; 2) the cost for necessary infrastructure to support such development is excessive and no funding is assured; 3) the level of development would have a significant adverse impact on the quality of life of the residents of Palmdale; and 4) further consideration of this alternative is inconsistent with the California Environmental Quality Act.

Auxiliary aids provided for communication accessibility upon 72 hours' notice and request.

In evaluating the potential impacts of the level of growth set forth in the 5th Ring alternative, staff determined a reasonable proportional share of growth, based on the trend and local input projections. The following levels of development were contemplated in our analysis:

North LA County	2000 Population	2030 Population	2000 Households	2030 Households	2000 Employment	2030 Employment
Local Input	512,409	1,060,667	161,137	355,435	178,997	265,691
Trend		1,101,536		368,740		247,578
5th Ring		1,750,148		611,940		611,940
Palmdale						
Local Input	117,729	300,101	34,447	88,265	45,116	73,964
Trend		322,290		94,013		55,850
5th Ring		500,000		154,000		150,000

Credibility of the 5th Ring Alternative

It is staff's position that the 5th Ring growth projection is not, by any credible measure, a true "projection" of growth. There is no technical justification for the diversion of 256,000 households from locations in the rest of the SCAG region to North Los Angeles County, nor is there any justification to assume that employment production will exceed local input projections by over 100%. It is clear that these numbers are simply cobbled together without regard to historic trends, available resources or local plans in order to achieve a desired political outcome. There is no plausible description of how SCAG plans to manipulate current market forces, state financing and tax policies, or Federal environmental regulations, in order to bring about this overly-ambitious development scenario. Based on this lack of credibility, we shall refer to the 5th Ring "projection" as merely a "proposal."

The basis for the 5th Ring proposal is substantially flawed. The incredible growth proposals for population, households and employment would more than double the amount of growth projected by North Los Angeles County local governments. To achieve these numbers of population, households

and employment, the rate of development would have to exceed any previous rate ever experienced in North Los Angeles County. As noted above, to date no specific strategies have been identified that would significantly influence those forces that would drive development at these unprecedented rates. The strategies noted by SCAG staff—the prioritization for funding of local transportation projects, and the "support" of the development of the Palmdale airport—will result in little change at the local level. The costs for providing the necessary infrastructure far exceed the funds that could reasonably be expected from state and federal sources and the success of the airport will be dependent almost exclusively on the interest and investments made by airlines, not by vague expressions of policy support. Since no actions that would dramatically influence market forces can be brought to bear on this proposal, it does not represent a credible projection of growth, supported by professional demographic research and historic development trends.

When reviewed in context of the region, the following implications become evident:

- The population increase for North Los Angeles County would represent over 21% of the population increase for the entire SCAG region. This would mean that for the next twenty-seven years, more than one of every five new Southern California residents would move to North Los Angeles County.

- The number of new residents that would be expected in Palmdale alone would exceed the number of new residents in **all of Orange County**. (Under the 5th Ring proposal, the total population increase for Orange County and **all** local governments therein would be 314,959 between 2000 and 2030, Palmdale's increase in the same time period would be 382,271).

- Palmdale's local input growth projection for 2030 would result in near buildout conditions. The number of additional units caused by the 5th ring proposal would substantially exceed the total residential development anticipated by our General Plan. To accommodate this level of development, the City would need to increase General

Plan Land use development densities by 100% or more on all remaining undeveloped residentially designated land.

Infrastructure Costs

The implementation of the 5th Ring proposal would result in a demand for additional infrastructure to support the households and employment growth identified for Palmdale. To evaluate the potential cost of the incremental increase in infrastructure demand caused by the 5th Ring alternative, staff prepared a partial list of transportation and utility improvements, drainage facilities, parkland and civic facilities, and other municipal services that would be required. Based on this partial analysis staff estimates the costs to support this amount of development would exceed $5.2 billion for Palmdale alone. To put this into perspective, in FY 2003-2004 our budget for capital projects is expected to be $74.2 million. In addition to the costs to Palmdale, there are capital costs to Los Angeles County, the State of California and/or Federal Government, and to private community investors to provide the infrastructure necessary to support 5th Ring proposal. The combined total of these capital costs would be over $18.6 billion to support only a portion of North Los Angeles County's share of the 5th ring growth proposal. A spreadsheet itemizing these costs is attached to this letter.

Costs for 2030 Growth Capital /One Time Costs	**Local Input Increment**	**Fifth Ring Increment**	**Total**
City	$3,073,436,000	$2,164,832,000	$5,238,268,000
County	$850,000,000	$430,900,000	$1,280,900,000
State/Federal	$5,780,000,000	$4,316,000,000	$10,096,000,000
Private Local	$1,179,600,000	$831,300,000	$2,010,900,000
Total	$10,883,036,000	$7,743,032,000	$18,626,068,000

In addition to the costs for capital improvements, annual operating costs associated with serving this population would exceed $250 million, based on a projection of our current expenditures and population.

These financial burdens are extraordinary, and to fulfill this obligation, we would require a dedicated source of funds of upwards of $900 million each year. Staff is not aware of any reliable source that could ensure

availability of this amount of money. We are already aggressively seeking grants, have set in place development impact fees, and have utilized our bonding capacity to the extent that prudence suggests, but it is unlikely that these sources will suffice for the significant and long term financial burden that the 5th Ring Growth projection would create.

Quality of Life for our Current Residents

This rate and volume of growth will inexorably change the character of our community. As indicated above, substantial modifications to the City's General Plan would be necessary. We would either have to dramatically increase allowable development densities or change existing land use designations throughout the City. Planning staff have determined that to create opportunities for construction of the number of housing units implied by the 5th Ring, the City would need to increase development density on all remaining undeveloped residential properties to an average of 5.5 dwelling units per acre (du/ac). Most of the remaining undeveloped land has a density designation of one unit per acre because those properties are located along the San Andreas Rift Zone and are in hillside areas with average slopes over 10%. These areas are not conducive to development densities as high as 5.5 du/ac. Alternatively, the City could increase development densities in the core area; however these downtown densities would need to be over 30 du/ac, in order to minimize inappropriate development in the hillside areas. Neither of these alternatives is likely to occur voluntarily, leaving the City in a situation where the projected growth far exceeds the permitted growth.

We are constrained from redesignating a significant amount of non-residentially designated property for two primary reasons: first, because if that were to occur then the astonishing 5th Ring employment projection could never be achieved; but most importantly, because residential encroachment within the operational area for U.S. Air Force Plant 42 could jeopardize its continued operation, as well as its future use as a commercial airport. The Southern California examples of the incompatibility between aircraft overflight and residential land are many. All of these situations have inevitably lead to closure of the facility or undue restrictions on the aircraft uses. Plant 42 is too valuable to our

local economy and the entire National Defense system to be threatened by the unnecessary encroachment of homes under flight paths. The 5th Ring proposal will make protection of this valuable facility nearly impossible.

Significant impacts to local air quality, loss of open space, hillside grading and aesthetics, and public service systems would also occur under this proposal. And, if insufficient funds are available to support development of necessary infrastructure, then the increased population and its accompanying impacts will further diminish the quality of life for both current and future residents. Increased development, adverse environmental changes and a reduction in services will change the character of our community from a "place to call home" to a place you wouldn't want to live.

CEQA Compliance

In response to the Notice of Preparation posted for the 2004 Regional Transportation Plan Environmental Impact Report, the City takes the position that the 5th Ring proposal is not a feasible alternative, and therefore should not be included in the EIR.

Pursuant to Public Resources Code Section 21061.1, "feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social and technological factors. Based on the information provided above, the 5th Ring proposal has no chance of being accomplished in a successful manner, or in a reasonable amount of time. Further, it is economically infeasible, and would result in significant adverse environmental impacts to the entire Antelope Valley. Based on these issues, inclusion of this proposal as an EIR alternative is in conflict with CEQA Guidelines Section 15126.6, which requires an EIR to "consider a range of potentially feasible alternatives that will foster informed decisionmaking and public participation." Because this alternative is not feasible and by its radical nature would countervail the process of informed decisionmaking, the City requests that you delete this alternative from the draft EIR.

In summary, we are strongly opposed to the further consideration of this proposal. It does not represent a credible 2030 growth scenario and it is not in the best interests of the residents of North Los Angeles County. If you have any questions concerning the issues raised in this letter, please contact Planning Director Laurie Lile at (661) 267- 5200

Sincerely,

James C. Ledford, Jr.
Mayor

cc: Members of the City Council
Distribution List

CITY OF RANCHO PALOS VERDES
PLANNING, BUILDING, & CODE ENFORCEMENT

September 11, 2003

Ted Harris
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017

Subject: Notice of Preparation for Program Environmental Impact Report for the 2004 Regional Transportation Plan

Dear Mr. Harris:

Thank you for the opportunity to respond to the Notice of Preparation for Program Environmental Impact Report for the 2004 Regional Transportation Plan. The City of Rancho Palos Verdes does not currently have any comments on the Notice of Preparation. Nonetheless, the City of Rancho Palos Verdes looks forward to reviewing the Draft Program Environmental Impact Report, at which time the City may provide comments.

If you have any questions regarding this matter, please contact Dave Blumenthal, Associate Planner, at (310) 544-5228, or via email at daveb@rpv.com.

Sincerely,

Joel Rojas, AICP
Director of Planning, Building
and Code Enforcement

30940 HAWTHORNE BLVD. / RANCHO PALOS VERDES, CA 90275-5391
PLANNING/CODE ENFORCEMENT (310) 544-5228 / BUILDING (310) 541-7702 / DEPT. FAX (310) 544-5293 / E-MAIL: PLANNING@RPV.COM

PLANNING & DEVELOPMENT DEPARTMENT
PLANNING DIVISION

September 30, 2003

Ted Harris, Regional Environmental Planner
Southern California Association of Governments (SCAG)
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017-3435

Re: Notice of Preparation of a Program Environmental Impact Report for the 2004 Regional Transportation Plan

Dear Mr. Harris:

Thank you for the opportunity to comment on the Notice of Preparation (NOP) of a Program Environmental Impact Report (PEIR) for the 2004 Regional Transportation Plan (RTP). The City looks forward to the RTP update process.

The NOP appears to indicate that the PEIR will review 12 of the environmental impact areas identified in Appendix G of the State CEQA Guidelines, with the exception of hazards and hazardous materials, recreation, and mineral resources. It is suggested that in addition to the 12 impact areas identified in the NOP, that the PEIR also should evaluate potential impacts in regards to hazards and hazardous materials. While it is the City's understanding that the PEIR cannot analyze such impacts on a site-specific basis, it is suggested that additional programs and policies at a regional level could better work to reduce any potential impacts in regards to hazards and hazardous materials throughout the SCAG region. Such regional programs and policies should best be evaluated in the context of the PEIR, and not in a piecemeal approach on a site-specific basis.

Thank you again for the opportunity to comment on the NOP. We look forward to reviewing the draft PEIR.

Sincerely,

John Poindexter
Planning Division Manager

cc: Joyce Amerson, Director of
Department of Transportation

175 North Garfield Avenue · Pasadena, CA 91101-1704
(626) 744-4009
www@ci.pasadena.ca.us

7.3 AIR EMISSIONS TABLES

YEAR 2000 - YR BASE (00r4.ZIP) - 2004 RTP
Version : Emfac2002 V2.2 Apr 23 2003 ** WIS Enabled **
Run Date : 10/31/03 13:16:20
Scen Year: 2000 -- Model Years: 1965 to 2000
Season : Summer

VEHICLE ON-ROAD EMISSIONS (Emissions in tons, VMT in 1000-miles, Fuel Consumption in 1000-gallons) Friday, October 31, 2003 1:18:29 PM

SUB AREA		VEHICLE	DAILY VMT	STARTS	ROG	CO	NOX	PM10 EX	TIRE W	BRAKE W	PM10 SUM	SOx	GASOLINE	DIESEL
LOS(SCAB)	HDT	181239	12269	4734291	25.24	216.45	202.67	3.68	0.31	0.17	4.17	1.51	321.51	1600.51
	L&M	5181487	179125	32265266	229.48	2384.34	229.67	3.16	1.57	2.47	7.21	1.26	9769.70	46.95
	OTH	59706	1592	55298	3.27	51.12	20.96	0.36	0.02	0.02	0.39	0.17	75.22	175.46
	SUM	5422430	192986	37054800	257.99	2651.92	453.29	7.21	1.91	2.67	11.79	2.95	10166.44	1822.94
ORA(SCAB)	HDT	42618	2936	1178238	5.22	46.01	41.44	0.68	0.07	0.04	0.78	0.33	85.64	335.80
	L&M	2009511	64562	12574433	70.07	689.98	66.40	0.89	0.56	0.89	2.36	0.45	3436.71	18.79
	OTH	22392	469	14091	0.89	15.60	4.44	0.07	0.00	0.00	0.08	0.03	25.57	33.08
	SUM	2074520	67967	13766800	76.18	751.59	112.28	1.65	0.64	0.94	3.23	0.80	3547.93	387.67
RIV(SCAB)	HDT	43134	3416	1105873	6.10	54.45	56.46	0.84	0.08	0.04	0.98	0.40	87.29	425.64
	L&M	762905	30722	4735071	33.85	373.41	34.62	0.52	0.27	0.44	1.21	0.22	1665.92	12.22
	OTH	17150	336	7997	0.57	12.40	2.50	0.04	0.00	0.00	0.05	0.02	19.68	15.66
	SUM	823189	34474	5848950	40.51	440.25	93.58	1.39	0.36	0.48	2.23	0.64	1772.88	453.52
SBD(SCAB)	HDT	35254	2547	878434	4.40	38.11	44.87	0.69	0.07	0.04	0.78	0.34	56.50	347.67
	L&M	789653	26775	4906288	33.13	332.32	31.39	0.40	0.23	0.37	1.01	0.19	1443.75	8.76
	OTH	12156	223	7414	0.41	8.30	1.97	0.04	0.00	0.00	0.05	0.01	12.12	14.28
	SUM	837063	29546	5792140	37.94	378.73	78.25	1.11	0.31	0.41	1.83	0.53	1512.37	370.71
SCAB SUM	HDT	302245	21168	7896835	40.96	355.01	345.45	5.88	0.52	0.30	6.70	2.55	550.95	2709.63
	L&M	8743568	301186	54481066	366.52	3780.04	362.07	4.98	2.64	4.17	11.81	2.11	16316.10	86.74
	OTH	111404	2620	84800	5.14	87.44	29.88	0.51	0.03	0.04	0.58	0.24	132.58	238.49
	SUM	9157210	324973	62462700	412.61	4222.49	737.40	11.37	3.22	4.49	19.08	4.91	16999.62	3034.84
VENTURA	HDT	13978	739	389199	1.72	15.17	11.00	0.16	0.01	0.00	0.20	0.07	25.05	75.77
	L&M	569466	15298	3525350	19.32	173.52	18.71	0.19	0.14	0.20	0.55	0.10	776.37	5.57
	OTH	10236	132	3580	0.22	5.59	0.95	0.01	0.00	0.00	0.01	0.00	8.33	4.38
	SUM	593680	16169	3918130	21.28	194.27	30.64	0.38	0.15	0.22	0.76	0.18	809.75	85.73
ANTELOPE	HDT	5453	366	154604	0.80	6.71	4.64	0.06	0.00	0.00	0.08	0.03	13.44	31.84
	L&M	149818	5715	921429	7.15	77.66	7.63	0.10	0.05	0.07	0.22	0.04	289.45	2.09
	OTH	3577	67	1832	0.12	2.35	0.55	0.01	0.00	0.00	0.01	0.00	3.53	3.55
	SUM	158848	6146	1077860	8.07	86.74	12.84	0.18	0.06	0.08	0.32	0.08	306.42	37.46
VICTOR+	HDT	13832	1123	386884	2.80	27.93	17.44	0.23	0.01	0.01	0.27	0.12	41.99	104.04
	L&M	187445	9001	1145812	11.29	135.09	12.59	0.19	0.08	0.13	0.39	0.07	482.71	4.56
	OTH	6376	147	2891	0.28	6.95	1.13	0.01	0.00	0.00	0.01	0.00	9.35	5.83
	SUM	207653	10269	1535590	14.37	169.97	31.17	0.44	0.11	0.14	0.69	0.19	534.06	114.44
COACHELLA	HDT	6656	543	189387	1.13	11.65	8.35	0.11	0.01	0.00	0.13	0.05	20.40	53.87
	L&M	135930	6332	849811	6.28	74.96	6.85	0.11	0.05	0.09	0.26	0.05	350.71	2.30
	OTH	2646	65	1561	0.13	2.36	0.53	0.00	0.00	0.00	0.00	0.00	3.99	3.51
	SUM	145232	6939	1040760	7.54	88.96	15.72	0.23	0.07	0.10	0.39	0.11	375.10	59.67
IMPERIAL	HDT	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	L&M	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	OTH	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUM	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AREA SUM	HDT	342164	23939	9016910	47.41	416.48	386.87	6.45	0.56	0.30	7.39	2.85	651.82	2975.14
	L&M	9786215	337530	60923460	410.57	4241.28	407.86	5.56	2.95	4.66	13.21	2.38	18215.32	101.24
	OTH	134239	3031	94664	5.89	104.67	33.03	0.54	0.02	0.02	0.60	0.23	157.79	255.75
	SUM	10262615	364496	70035030	463.88	4762.43	827.77	12.59	3.61	5.04	21.24	5.48	19024.95	3332.14

Note :
Banning Area is included in SCAB, not in Coachella Valley
SUM = Light & Medium Duty Vehicle + Heavy Duty Truck + Others
L&M = Passenger car + Light Duty Truck(1) & (2) + Medium Duty Truck + Motor Cycle
HDT = Light Heavy Duty Truck (1) & (2) + Medium Heavy Duty Truck + Heavy Heavy Duty Truck
OTH = Line Haul Vehicle + School Bus + Urban Bus + Motor Home
Y00SCAB.prn, Y00VENT.PRN, Y00ANTE.PRN, Y00VICT.PRN
Y00COAC.PRN
For Rule 2202 : VOC = 300.99 CO = 3422.00 NOx = 319.76 PM10 = 10.77
D:\EmfacBasic\EmfacBurden.vbp - Hong Kim (213) 236-1904 kim@scag.ca.gov Conformity Analysis SCAG

YEAR 2030 - ONE PILUT (30p1a.ZIP)
Version : Emfac2002 V2.2 Apr 23 2003 ** WIS Enabled **
Run Date : 11/09/03 12:58:43
Scen Year: 2030 -- Model Years: 1985 to 2030
Season : Summer

VEHICLE ON-ROAD EMISSIONS (Emissions in tons, VMT in 1000-miles, Fuel Consumption in 1000-gallons) Sunday, November 09, 2003 1:00:57 PM

SUB AREA		VEHICLE	DAILY VMT	STARTS	ROG	CO	NOX	PM10 EX	TIRE W	BRAKE W	PM10 SUM	SOx	GASOLINE	DIESEL
LOS(SCAB)	HDT	265496	18747	6150338	8.16	36.42	37.30	1.12	0.53	0.27	1.91	0.34	279.72	2873.95
	L&M	5438453	181274	33089815	27.39	232.26	18.74	3.85	1.59	2.51	7.94	0.86	9204.69	3.34
	OTH	96393	2416	78598	1.03	9.10	10.02	0.23	0.02	0.03	0.29	0.03	115.85	193.94
	SUM	5800340	202437	39318800	36.58	277.78	66.05	5.20	2.15	2.80	10.15	1.23	9600.27	3071.21
ORA(SCAB)	HDT	67077	4044	1646187	2.14	8.52	8.19	0.25	0.10	0.05	0.41	0.06	71.79	565.59
	L&M	2332495	68931	14203198	11.11	79.86	5.89	1.19	0.60	0.95	2.76	0.33	3446.70	1.08
	OTH	40310	802	22296	0.30	2.76	2.57	0.06	0.01	0.01	0.09	0.00	40.00	49.67
	SUM	2439890	73777	15871700	13.55	91.14	16.64	1.51	0.72	1.02	3.25	0.40	3558.49	616.34
RIV(SCAB)	HDT	83223	6319	1931509	2.76	12.18	12.38	0.37	0.19	0.10	0.63	0.11	103.77	926.29
	L&M	1253372	47553	7655923	6.49	56.16	3.74	0.95	0.42	0.66	2.05	0.24	2532.56	0.64
	OTH	39914	764	16356	0.18	1.87	1.41	0.04	0.01	0.01	0.07	0.00	41.83	34.01
	SUM	1376510	54635	9603790	9.44	70.23	17.53	1.38	0.60	0.76	2.74	0.35	2678.17	960.94
SBD(SCAB)	HDT	70485	4884	1587317	2.10	9.24	9.85	0.30	0.13	0.06	0.51	0.08	68.97	760.20
	L&M	1231208	39878	7535194	5.98	44.17	3.12	0.67	0.35	0.55	1.60	0.20	2073.49	0.42
	OTH	28169	503	15032	0.12	1.06	1.10	0.03	0.00	0.00	0.04	0.00	24.28	27.42
	SUM	1329860	45267	9137540	8.20	54.47	14.08	1.02	0.50	0.63	2.14	0.29	2166.75	788.04
SCAB SUM	HDT	486281	33994	11315349	15.15	66.37	67.73	2.04	0.94	0.47	3.48	0.59	524.28	5126.01
	L&M	10255536	337634	62484120	50.97	412.45	31.48	6.68	2.96	4.66	14.33	1.62	17257.45	5.48
	OTH	204786	4486	132282	1.64	14.80	15.09	0.36	0.06	0.06	0.48	0.06	221.96	305.05
	SUM	10946600	376116	73931800	67.77	493.62	114.30	9.11	3.97	5.20	18.28	2.26	18003.69	5436.52
VENTURA	HDT	19874	1001	488421	0.60	2.30	2.17	0.06	0.02	0.01	0.10	0.01	19.61	136.56
	L&M	795590	19779	4821954	3.59	22.52	1.89	0.30	0.17	0.28	0.75	0.09	951.11	0.30
	OTH	18595	238	5779	0.05	0.36	0.41	0.01	0.00	0.00	0.02	0.00	12.82	8.74
	SUM	834059	21020	5316150	4.23	25.20	4.46	0.37	0.20	0.29	0.86	0.11	983.54	145.61
ANTELOPE	HDT	20030	1441	497508	0.61	2.48	2.22	0.06	0.04	0.02	0.14	0.01	30.81	177.54
	L&M	371210	14086	2270849	1.65	16.18	1.16	0.30	0.12	0.19	0.61	0.06	715.29	0.17
	OTH	12615	229	5646	0.04	0.28	0.36	0.01	0.00	0.00	0.02	0.00	13.08	10.54
	SUM	403855	15758	2774000	2.28	18.95	3.73	0.38	0.16	0.22	0.76	0.09	759.19	188.26
VICTOR+	HDT	26433	2240	658658	1.10	4.57	3.59	0.14	0.06	0.03	0.23	0.03	48.79	276.10
	L&M	293700	13859	1788285	1.58	17.23	1.28	0.32	0.12	0.19	0.62	0.07	712.22	0.15
	OTH	16096	371	6420	0.10	0.88	0.81	0.02	0.00	0.00	0.03	0.00	18.72	15.38
	SUM	336229	16470	2453360	2.78	22.66	5.68	0.47	0.18	0.23	0.88	0.10	779.73	291.64
COACHELLA	HDT	15124	1219	367773	0.52	2.45	2.42	0.06	0.02	0.01	0.11	0.01	25.49	164.52
	L&M	311580	13378	1912547	1.51	15.84	1.03	0.33	0.12	0.18	0.61	0.07	740.18	0.20
	OTH	5586	133	2909	0.03	0.39	0.27	0.00	0.00	0.00	0.01	0.00	6.82	6.75
	SUM	332290	14728	2283230	2.07	18.68	3.72	0.40	0.15	0.20	0.75	0.09	772.50	171.47
IMPERIAL	HDT	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	L&M	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	OTH	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUM	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AREA SUM	HDT	567742	39895	13327711	17.99	78.16	78.12	2.36	1.09	0.55	4.04	0.65	648.95	5880.75
	L&M	12027608	398738	73277765	59.30	484.22	36.85	7.91	3.49	5.51	16.94	1.92	20376.24	6.30
	OTH	257678	5456	153036	1.85	16.70	16.95	0.40	0.04	0.05	0.57	0.03	273.40	346.45
	SUM	12853033	444092	86758570	79.13	579.11	131.89	10.73	4.66	6.15	21.53	2.66	21298.64	6233.51

Note :
Banning Area is included in SCAB, not in Coachella Valley
SUM = Light & Medium Duty Vehicle + Heavy Duty Truck + Others
L&M = Passenger car + Light Duty Truck(1) & (2) + Medium Duty Truck + Motor Cycle
HDT = Light Heavy Duty Truck (1) & (2) + Medium Heavy Duty Truck + Heavy Heavy Duty Truck
OTH = Line Haul Vehicle + School Bus + Urban Bus + Motor Home
030SCAB.prn, 030VENT.PRN, 030ANTE.PRN, 030VICT.PRN
030COAC.PRN
For Rule 2202 : VOC = 31.90 CO = 334.35 NOx = 25.24 PM10 = 12.93
D:\EmfacBasic\EmfacBurden.vbp - Hong Kim (213) 236-1904 kim@scag.ca.gov Conformity Analysis SCAG

YEAR 2030 - TWO PILUT (30p2a.ZIP)
Version : Emfac2002 V2.2 Apr 23 2003 ** WIS Enabled **
Run Date : 11/10/03 10:37:09
Scen Year: 2030 -- Model Years: 1985 to 2030
Season : Summer

VEHICLE ON-ROAD EMISSIONS (Emissions in tons, VMT in 1000-miles, Fuel Consumption in 1000-gallons) Monday, November 10, 2003 10:39:17 AM

SUB AREA		VEHICLE	DAILY VMT	STARTS	ROG	CO	NOX	PM10 EX	TIRE W	BRAKE W	PM10 SUM	SOx	GASOLINE	DIESEL
LOS(SCAB)	HDT	272015	19207	6301336	8.28	37.20	39.01	1.12	0.55	0.27	1.92	0.34	287.10	2944.49
	L&M	5398010	179925	32843721	27.12	228.53	18.54	3.74	1.58	2.50	7.82	0.85	9073.14	3.31
	OTH	96393	2416	78598	1.03	9.10	10.02	0.23	0.02	0.03	0.29	0.03	115.85	193.94
	SUM	5766420	201549	39223700	36.44	274.83	67.57	5.10	2.15	2.79	10.04	1.22	9476.11	3141.75
ORA(SCAB)	HDT	65743	3964	1613430	2.10	8.38	8.02	0.25	0.10	0.05	0.40	0.05	70.72	554.33
	L&M	2310658	68285	14070198	11.01	79.01	5.82	1.18	0.60	0.94	2.72	0.32	3412.01	1.07
	OTH	40310	802	22296	0.30	2.76	2.57	0.06	0.01	0.01	0.09	0.00	40.00	49.67
	SUM	2416710	73051	15705900	13.40	90.15	16.42	1.49	0.71	1.01	3.21	0.39	3522.72	605.07
RIV(SCAB)	HDT	79912	6068	1854679	2.64	11.62	11.95	0.35	0.18	0.10	0.60	0.11	98.47	889.44
	L&M	1267240	48077	7740625	6.57	56.79	3.79	0.98	0.43	0.66	2.06	0.25	2561.68	0.64
	OTH	39914	764	16356	0.18	1.87	1.41	0.04	0.01	0.01	0.07	0.00	41.83	34.01
	SUM	1387070	54910	9611660	9.39	70.28	17.13	1.37	0.60	0.76	2.73	0.35	2701.99	924.10
SBD(SCAB)	HDT	75256	5214	1694760	2.18	9.71	11.09	0.29	0.14	0.06	0.52	0.09	73.24	811.65
	L&M	1148159	37189	7026930	5.56	40.32	2.90	0.60	0.33	0.51	1.45	0.18	1902.56	0.40
	OTH	28169	503	15032	0.12	1.06	1.10	0.03	0.00	0.00	0.04	0.00	24.28	27.42
	SUM	1251580	42907	8736730	7.86	51.10	15.09	0.94	0.48	0.59	2.02	0.28	2000.06	839.47
SCAB SUM	HDT	492926	34453	11464204	15.20	66.89	70.07	2.01	0.97	0.48	3.46	0.60	529.54	5199.93
	L&M	10124071	333478	61681527	50.27	404.65	31.04	6.51	2.93	4.62	14.06	1.59	16949.37	5.42
	OTH	204786	4486	132282	1.64	14.80	15.09	0.36	0.06	0.06	0.48	0.06	221.96	305.05
	SUM	10821800	372417	73278000	67.10	486.36	116.20	8.90	3.95	5.15	18.00	2.24	17700.89	5510.38
VENTURA	HDT	19029	958	467626	0.57	2.20	2.07	0.05	0.02	0.01	0.10	0.01	18.65	130.74
	L&M	766168	19048	4643632	3.46	21.61	1.82	0.28	0.17	0.26	0.70	0.09	910.81	0.30
	OTH	18595	238	5779	0.05	0.36	0.41	0.01	0.00	0.00	0.02	0.00	12.82	8.74
	SUM	803792	20245	5117040	4.07	24.17	4.29	0.35	0.20	0.28	0.82	0.10	942.28	139.79
ANTELOPE	HDT	18934	1361	470277	0.58	2.53	2.18	0.07	0.03	0.02	0.14	0.01	34.42	167.83
	L&M	680566	25826	4163309	3.23	31.90	2.25	0.74	0.22	0.35	1.33	0.14	1547.89	0.31
	OTH	12615	229	5646	0.04	0.28	0.36	0.01	0.00	0.00	0.02	0.00	13.08	10.54
	SUM	712115	27418	4639230	3.85	34.69	4.80	0.83	0.26	0.38	1.47	0.17	1595.38	178.68
VICTOR+	HDT	31468	2667	784092	1.24	5.40	4.98	0.14	0.07	0.04	0.24	0.04	61.72	328.68
	L&M	466301	22004	2839229	2.54	27.86	2.08	0.53	0.19	0.30	1.03	0.11	1163.94	0.26
	OTH	16096	371	6420	0.10	0.88	0.81	0.02	0.00	0.00	0.03	0.00	18.72	15.38
	SUM	513865	25041	3629740	3.88	34.12	7.85	0.69	0.26	0.35	1.30	0.15	1244.39	344.32
COACHELLA	HDT	15452	1245	375715	0.53	2.48	2.45	0.06	0.02	0.01	0.11	0.01	25.42	168.08
	L&M	334695	14371	2054434	1.63	17.08	1.10	0.34	0.13	0.20	0.67	0.07	792.37	0.20
	OTH	5586	133	2909	0.03	0.39	0.27	0.00	0.00	0.00	0.01	0.00	6.82	6.75
	SUM	355733	15746	2433060	2.19	19.94	3.82	0.42	0.16	0.22	0.80	0.10	824.61	175.04
IMPERIAL	HDT	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	L&M	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	OTH	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUM	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AREA SUM	HDT	577809	40684	13561915	18.12	79.52	81.75	2.33	1.11	0.56	4.03	0.66	669.74	5995.24
	L&M	12371797	414725	75382078	61.12	503.10	38.30	8.39	3.65	5.72	17.78	2.01	21364.40	6.49
	OTH	257678	5456	153036	1.85	16.70	16.95	0.40	0.04	0.05	0.57	0.03	273.40	346.45
	SUM	13207285	460867	89097060	81.08	599.28	136.97	11.19	4.82	6.38	22.39	2.76	22307.54	6348.22

Note :
Banning Area is included in SCAB, not in Coachella Valley
SUM = Light & Medium Duty Vehicle + Heavy Duty Truck + Others
L&M = Passenger car + Light Duty Truck(1) & (2) + Medium Duty Truck + Motor Cycle
HDT = Light Heavy Duty Truck (1) & (2) + Medium Heavy Duty Truck + Heavy Heavy Duty Truck
OTH = Line Haul Vehicle + School Bus + Urban Bus + Motor Home
T30SCAB.prn, T30VENT.PRN, T30ANTE.PRN, T30VICT.PRN
T30COAC.PRN
For Rule 2202 : VOC = 31.43 CO = 327.51 NOx = 24.88 PM10 = 12.69
D:\EmfacBasic\EmfacBurden.vbp - Hong Kim (213) 236-1904 kim@scag.ca.gov Conformity Analysis SCAG

YEAR 2030 - No Project
Version : Emfac2002 V2.2 Apr 23 2003 ** WIS Enabled **
Run Date : 11/10/03 09:40:43
Scen Year: 2030 -- Model Years: 1985 to 2030
Season : Summer

VEHICLE ON-ROAD EMISSIONS (Emissions in tons, VMT in 1000-miles, Fuel Consumption in 1000-gallons) Monday, November 10, 2003 9:43:00 AM

SUB AREA		VEHICLE	DAILY VMT	STARTS	ROG	CO	NOX	PM10 EX	TIRE W	BRAKE W	PM10 SUM	SOx	GASOLINE	DIESEL
LOS(SCAB)	HDT	261555	18468	6059057	8.19	36.88	36.27	1.17	0.52	0.26	1.95	0.33	291.25	2831.29
	L&M	6511919	217055	39621344	33.30	288.17	22.86	5.05	1.91	3.00	9.98	1.08	11529.51	4.00
	OTH	96393	2416	78598	1.03	9.10	10.02	0.23	0.02	0.03	0.29	0.03	115.85	193.94
	SUM	6869880	237939	45759000	42.52	334.16	69.14	6.47	2.46	3.29	12.21	1.44	11936.62	3029.22
ORA(SCAB)	HDT	67416	4065	1654495	2.18	8.69	8.06	0.27	0.10	0.05	0.41	0.07	73.83	568.43
	L&M	2577205	76162	15693260	12.33	90.30	6.54	1.39	0.68	1.05	3.10	0.36	3870.30	1.19
	OTH	40310	802	22296	0.30	2.76	2.57	0.06	0.01	0.01	0.09	0.00	40.00	49.67
	SUM	2684930	81029	17370000	14.79	101.75	17.17	1.70	0.79	1.12	3.61	0.44	3984.13	619.30
RIV(SCAB)	HDT	88595	6728	2056199	3.01	13.42	12.91	0.43	0.20	0.10	0.70	0.12	117.63	986.09
	L&M	1388611	52684	8481990	7.31	65.43	4.24	1.20	0.47	0.72	2.40	0.27	2959.23	0.69
	OTH	39914	764	16356	0.18	1.87	1.41	0.04	0.01	0.01	0.07	0.00	41.83	34.01
	SUM	1517120	60174	10554500	10.51	80.72	18.54	1.68	0.66	0.83	3.17	0.40	3118.68	1020.80
SBD(SCAB)	HDT	69943	4846	1575123	2.06	9.12	9.95	0.29	0.13	0.06	0.50	0.08	68.28	754.36
	L&M	1220517	39533	7469768	5.92	44.52	3.10	0.67	0.35	0.55	1.59	0.19	2045.83	0.41
	OTH	28169	503	15032	0.12	1.06	1.10	0.03	0.00	0.00	0.04	0.00	24.28	27.42
	SUM	1318630	44883	9059920	8.10	54.70	14.13	1.01	0.49	0.62	2.12	0.28	2138.38	782.19
SCAB SUM	HDT	487509	34107	11344872	15.45	68.10	67.17	2.16	0.95	0.47	3.58	0.59	550.99	5140.17
	L&M	11698259	385433	71266298	58.85	488.41	36.73	8.34	3.40	5.34	17.05	1.90	20404.86	6.30
	OTH	204786	4486	132282	1.64	14.80	15.09	0.36	0.06	0.06	0.48	0.06	221.96	305.05
	SUM	12390600	424025	82743500	75.92	571.32	118.99	10.85	4.40	5.86	21.11	2.56	21177.82	5451.52
VENTURA	HDT	19139	964	470359	0.57	2.22	2.06	0.05	0.02	0.01	0.10	0.01	18.94	131.51
	L&M	829172	20615	5025474	3.73	23.59	1.97	0.31	0.17	0.28	0.77	0.10	992.41	0.33
	OTH	18595	238	5779	0.05	0.36	0.41	0.01	0.00	0.00	0.02	0.00	12.82	8.74
	SUM	866906	21817	5501610	4.36	26.18	4.44	0.38	0.21	0.30	0.89	0.11	1024.16	140.58
ANTELOPE	HDT	8054	579	200059	0.24	1.04	0.92	0.03	0.01	0.00	0.05	0.01	13.54	71.39
	L&M	350961	13318	2146974	1.54	15.03	1.08	0.26	0.12	0.19	0.57	0.06	659.10	0.15
	OTH	12615	229	5646	0.04	0.28	0.36	0.01	0.00	0.00	0.02	0.00	13.08	10.54
	SUM	371630	14128	2352680	1.83	16.36	2.35	0.31	0.13	0.20	0.64	0.07	685.71	82.09
VICTOR+	HDT	28170	2388	701904	1.11	4.82	4.48	0.12	0.06	0.03	0.21	0.03	54.85	294.23
	L&M	361092	17038	2198611	1.95	21.62	1.59	0.41	0.15	0.25	0.78	0.08	884.83	0.20
	OTH	16096	371	6420	0.10	0.88	0.81	0.02	0.00	0.00	0.03	0.00	18.72	15.38
	SUM	405358	19797	2906930	3.15	27.33	6.88	0.55	0.21	0.27	1.04	0.12	958.41	309.81
COACHELLA	HDT	13520	1089	328761	0.46	2.17	2.15	0.06	0.02	0.01	0.10	0.01	22.28	147.07
	L&M	276577	11875	1697701	1.33	13.97	0.90	0.27	0.11	0.16	0.54	0.06	637.64	0.17
	OTH	5586	133	2909	0.03	0.39	0.27	0.00	0.00	0.00	0.01	0.00	6.82	6.75
	SUM	295683	13095	2029370	1.83	16.52	3.33	0.34	0.13	0.18	0.65	0.08	666.74	154.00
IMPERIAL	HDT	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	L&M	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	OTH	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUM	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AREA SUM	HDT	556392	39127	13045957	17.82	78.36	76.80	2.42	1.06	0.52	4.02	0.66	660.60	5784.37
	L&M	13516054	448280	82335122	67.41	562.63	42.28	9.56	3.96	6.20	19.73	2.20	23578.85	7.14
	OTH	257678	5456	153036	1.85	16.70	16.95	0.40	0.04	0.05	0.57	0.03	273.40	346.45
	SUM	14330137	492862	95534010	87.09	657.72	135.98	12.44	5.08	6.81	24.33	2.94	24512.83	6137.99

Note :
Banning Area is included in SCAB, not in Coachella Valley
SUM = Light & Medium Duty Vehicle + Heavy Duty Truck + Others
L&M = Passenger car + Light Duty Truck(1) & (2) + Medium Duty Truck + Motor Cycle
HDT = Light Heavy Duty Truck (1) & (2) + Medium Heavy Duty Truck + Heavy Heavy Duty Truck
OTH = Line Haul Vehicle + School Bus + Urban Bus + Motor Home
B30SCAB.prn, B30VENT.PRN, B30ANTE.PRN, B30VICT.PRN
B30COAC.PRN
For Rule 2202 : VOC = 37.07 CO = 398.36 NOx = 29.48 PM10 = 15.36
D:\EmfacBasic\EmfacBurden.vbp - Hong Kim (213) 236-1904 kim@scag.ca.gov Conformity Analysis SCAG

YEAR 2030 - 2001 RTP Modified
Version : Emfac2002 V2.2 Apr 23 2003 ** WIS Enabled **
Run Date : 11/14/03 14:27:20
Scen Year: 2030 -- Model Years: 1985 to 2030
Season : Summer

VEHICLE ON-ROAD EMISSIONS (Emissions in tons, VMT in 1000-miles, Fuel Consumption in 1000-gallons) Friday, November 14, 2003 2:31:47 PM

SUB AREA		VEHICLE	DAILY VMT	STARTS	ROG	CO	NOX	PM10 EX	TIRE W	BRAKE W	PM10 SUM	SOx	GASOLINE	DIESEL
LOS(SCAB)	HDT	268481	18957	6219507	8.29	37.15	37.72	1.15	0.53	0.27	1.95	0.34	287.75	2906.26
	L&M	6258525	208609	38079548	31.63	270.26	21.66	4.52	1.83	2.88	9.24	1.01	10694.76	3.84
	OTH	96393	2416	78598	1.03	9.10	10.02	0.23	0.02	0.03	0.29	0.03	115.85	193.94
	SUM	6623400	229982	44377600	40.94	316.51	69.39	5.91	2.40	3.18	11.48	1.37	11098.38	3104.03
ORA(SCAB)	HDT	70800	4270	1737550	2.27	9.05	8.59	0.27	0.10	0.05	0.43	0.08	76.60	596.97
	L&M	2519334	74451	15340889	12.02	86.98	6.37	1.32	0.65	1.02	3.00	0.35	3748.21	1.15
	OTH	40310	802	22296	0.30	2.76	2.57	0.06	0.01	0.01	0.09	0.00	40.00	49.67
	SUM	2630450	79523	17100700	14.59	98.79	17.52	1.64	0.78	1.10	3.52	0.43	3864.79	647.81
RIV(SCAB)	HDT	93500	7100	2170058	3.11	13.69	13.87	0.42	0.20	0.10	0.71	0.12	116.47	1040.69
	L&M	1381818	52426	8440511	7.16	62.34	4.12	1.08	0.47	0.71	2.27	0.26	2795.68	0.69
	OTH	39914	764	16356	0.18	1.87	1.41	0.04	0.01	0.01	0.07	0.00	41.83	34.01
	SUM	1515230	60289	10626900	10.45	77.91	19.39	1.54	0.67	0.83	3.04	0.39	2953.99	1075.40
SBD(SCAB)	HDT	74193	5140	1670795	2.16	9.63	10.91	0.29	0.14	0.06	0.51	0.09	73.01	800.18
	L&M	1213716	39314	7428136	5.88	43.10	3.07	0.66	0.35	0.54	1.55	0.19	2027.14	0.41
	OTH	28169	503	15032	0.12	1.06	1.10	0.03	0.00	0.00	0.04	0.00	24.28	27.42
	SUM	1316080	44957	9113970	8.16	53.79	15.07	0.99	0.50	0.62	2.11	0.29	2124.43	828.01
SCAB SUM	HDT	506974	35466	11797903	15.81	69.52	71.08	2.15	0.99	0.48	3.62	0.62	553.81	5344.10
	L&M	11373401	374798	69389075	56.69	462.69	35.22	7.57	3.31	5.19	16.06	1.80	19265.82	6.12
	OTH	204786	4486	132282	1.64	14.80	15.09	0.36	0.06	0.06	0.48	0.06	221.96	305.05
	SUM	12085200	414751	81219200	74.14	547.00	121.38	10.07	4.34	5.73	20.15	2.48	20041.59	5655.26
VENTURA	HDT	19157	965	470764	0.57	2.22	2.08	0.05	0.02	0.01	0.10	0.01	18.76	131.63
	L&M	800482	19901	4851597	3.61	22.58	1.91	0.30	0.17	0.28	0.75	0.09	951.74	0.31
	OTH	18595	238	5779	0.05	0.36	0.41	0.01	0.00	0.00	0.02	0.00	12.82	8.74
	SUM	838234	21105	5328140	4.23	25.17	4.38	0.36	0.20	0.29	0.86	0.11	983.31	140.68
ANTELOPE	HDT	8556	616	212540	0.25	1.07	0.98	0.03	0.01	0.00	0.05	0.01	13.60	75.84
	L&M	332628	12623	2034833	1.46	13.94	1.02	0.24	0.11	0.17	0.51	0.06	603.67	0.14
	OTH	12615	229	5646	0.04	0.28	0.36	0.01	0.00	0.00	0.02	0.00	13.08	10.54
	SUM	353799	13468	2253020	1.74	15.30	2.35	0.28	0.13	0.19	0.59	0.07	630.35	86.54
VICTOR+	HDT	29359	2488	731501	1.13	5.02	4.72	0.12	0.06	0.04	0.22	0.04	57.73	306.64
	L&M	360090	16991	2192522	1.94	21.10	1.57	0.37	0.15	0.24	0.76	0.08	865.91	0.20
	OTH	16096	371	6420	0.10	0.88	0.81	0.02	0.00	0.00	0.03	0.00	18.72	15.38
	SUM	405545	19850	2930440	3.18	27.00	7.11	0.53	0.22	0.27	1.02	0.12	942.37	322.21
COACHELLA	HDT	13942	1123	339006	0.47	2.25	2.25	0.06	0.02	0.01	0.10	0.01	23.29	151.65
	L&M	272428	11697	1672225	1.31	13.67	0.88	0.26	0.11	0.16	0.53	0.06	631.03	0.15
	OTH	5586	133	2909	0.03	0.39	0.27	0.00	0.00	0.00	0.01	0.00	6.82	6.75
	SUM	291956	12951	2014140	1.82	16.30	3.41	0.34	0.13	0.18	0.65	0.08	661.13	158.58
IMPERIAL	HDT	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	L&M	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	OTH	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUM	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AREA SUM	HDT	577988	40659	13551721	18.25	80.08	81.12	2.39	1.08	0.54	4.07	0.70	667.21	6009.86
	L&M	13139021	436012	80040261	65.01	533.97	40.60	8.75	3.84	6.00	18.61	2.10	22318.14	6.89
	OTH	257678	5456	153036	1.85	16.70	16.95	0.40	0.04	0.05	0.57	0.03	273.40	346.45
	SUM	13974694	482125	93744910	85.11	630.77	138.62	11.59	5.03	6.66	23.27	2.86	23258.75	6363.26

Note :
Banning Area is included in SCAB, not in Coachella Valley
SUM = Light & Medium Duty Vehicle + Heavy Duty Truck + Others
L&M = Passenger car + Light Duty Truck(1) & (2) + Medium Duty Truck + Motor Cycle
HDT = Light Heavy Duty Truck (1) & (2) + Medium Heavy Duty Truck + Heavy Heavy Duty Truck
OTH = Line Haul Vehicle + School Bus + Urban Bus + Motor Home
n30SCAB.prn, n30VENT.PRN, n30ANTE.PRN, n30VICT.PRN
n30COAC.PRN
For Rule 2202 : VOC = 35.54 CO = 375.69 NOx = 28.24 PM10 = 14.48
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YEAR 2030 - 2004 RTP
Version : Emfac2002 V2.2 Apr 23 2003 ** WIS Enabled **
Run Date : 11/09/03 11:45:28
Scen Year: 2030 -- Model Years: 1985 to 2030
Season : Summer

VEHICLE ON-ROAD EMISSIONS (Emissions in tons, VMT in 1000-miles, Fuel Consumption in 1000-gallons) Sunday, November 09, 2003 11:47:37 AM

SUB AREA		VEHICLE	DAILY VMT	STARTS	ROG	CO	NOX	PM10 EX	TIRE W	BRAKE W	PM10 SUM	SOx	GASOLINE	DIESEL
LOS(SCAB)	HDT	267332	18876	6192855	8.23	36.87	37.61	1.14	0.53	0.27	1.93	0.34	284.65	2893.80
	L&M	6166575	205544	37519989	31.10	265.53	21.30	4.41	1.81	2.84	9.07	0.98	10488.99	3.78
	OTH	96393	2416	78598	1.03	9.10	10.02	0.23	0.02	0.03	0.29	0.03	115.85	193.94
	SUM	6530300	226836	43791500	40.37	311.50	68.92	5.78	2.37	3.14	11.29	1.35	10889.48	3091.53
ORA(SCAB)	HDT	70586	4256	1732270	2.26	9.03	8.56	0.27	0.10	0.05	0.43	0.08	76.28	595.16
	L&M	2492355	73653	15176584	11.89	86.01	6.30	1.30	0.65	1.02	2.97	0.35	3705.28	1.15
	OTH	40310	802	22296	0.30	2.76	2.57	0.06	0.01	0.01	0.09	0.00	40.00	49.67
	SUM	2603250	78712	16931200	14.45	97.77	17.43	1.63	0.77	1.09	3.48	0.43	3821.57	645.99
RIV(SCAB)	HDT	91743	6967	2129264	3.04	13.39	13.64	0.41	0.20	0.10	0.70	0.12	113.81	1021.13
	L&M	1339806	50832	8183902	6.92	60.22	4.00	1.02	0.45	0.70	2.18	0.25	2697.90	0.68
	OTH	39914	764	16356	0.18	1.87	1.41	0.04	0.01	0.01	0.07	0.00	41.83	34.01
	SUM	1471460	58562	10329500	10.16	75.49	19.02	1.48	0.65	0.81	2.94	0.38	2853.53	1055.82
SBD(SCAB)	HDT	73403	5085	1653054	2.13	9.53	10.80	0.29	0.14	0.06	0.51	0.09	72.36	791.68
	L&M	1204147	39002	7369596	5.85	42.74	3.04	0.65	0.35	0.54	1.54	0.19	2010.28	0.41
	OTH	28169	503	15032	0.12	1.06	1.10	0.03	0.00	0.00	0.04	0.00	24.28	27.42
	SUM	1305720	44592	9037680	8.09	53.34	14.95	0.98	0.50	0.62	2.09	0.28	2106.93	819.51
SCAB SUM	HDT	503064	35184	11707438	15.67	68.81	70.61	2.12	0.98	0.48	3.57	0.61	547.09	5301.78
	L&M	11202884	369032	68250112	55.78	454.49	34.62	7.39	3.24	5.11	15.75	1.77	18902.44	6.02
	OTH	204786	4486	132282	1.64	14.80	15.09	0.36	0.06	0.06	0.48	0.06	221.96	305.05
	SUM	11910700	408703	80089800	73.07	538.10	120.33	9.87	4.28	5.65	19.80	2.44	19671.51	5612.84
VENTURA	HDT	19189	967	471590	0.57	2.22	2.09	0.05	0.02	0.01	0.10	0.01	18.77	131.86
	L&M	799503	19878	4845665	3.61	22.56	1.91	0.30	0.17	0.28	0.75	0.09	950.21	0.31
	OTH	18595	238	5779	0.05	0.36	0.41	0.01	0.00	0.00	0.02	0.00	12.82	8.74
	SUM	837287	21082	5323030	4.22	25.14	4.38	0.36	0.20	0.29	0.86	0.11	981.81	140.91
ANTELOPE	HDT	8387	603	208300	0.25	1.04	0.97	0.03	0.01	0.00	0.05	0.01	13.18	74.33
	L&M	312876	11874	1913987	1.36	13.07	0.95	0.20	0.11	0.16	0.49	0.06	565.38	0.14
	OTH	12615	229	5646	0.04	0.28	0.36	0.01	0.00	0.00	0.02	0.00	13.08	10.54
	SUM	333878	12706	2127930	1.65	14.40	2.27	0.26	0.12	0.18	0.56	0.06	591.65	85.02
VICTOR+	HDT	29013	2459	722900	1.13	4.96	4.67	0.12	0.06	0.03	0.22	0.03	57.02	303.03
	L&M	359204	16951	2187124	1.92	21.05	1.57	0.37	0.15	0.24	0.76	0.08	861.85	0.20
	OTH	16096	371	6420	0.10	0.88	0.81	0.02	0.00	0.00	0.03	0.00	18.72	15.38
	SUM	404313	19779	2916450	3.15	26.89	7.05	0.53	0.21	0.27	1.01	0.12	937.59	318.61
COACHELLA	HDT	13886	1118	337639	0.47	2.24	2.25	0.06	0.02	0.01	0.10	0.01	23.35	151.05
	L&M	265377	11393	1628941	1.28	13.39	0.88	0.26	0.11	0.16	0.53	0.06	621.22	0.15
	OTH	5586	133	2909	0.03	0.39	0.27	0.00	0.00	0.00	0.01	0.00	6.82	6.75
	SUM	284849	12644	1969490	1.79	16.02	3.39	0.33	0.13	0.17	0.64	0.08	651.38	157.96
IMPERIAL	HDT	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	L&M	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	OTH	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUM	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AREA SUM	HDT	573539	40331	13447872	18.08	79.28	80.59	2.37	1.08	0.53	4.04	0.69	659.42	5962.04
	L&M	12939843	429127	78825788	63.93	524.57	39.95	8.51	3.80	5.94	18.29	2.06	21901.11	6.82
	OTH	257678	5456	153036	1.85	16.70	16.95	0.40	0.04	0.05	0.57	0.03	273.40	346.45
	SUM	13771057	474913	92426780	83.88	620.55	137.41	11.35	4.95	6.57	22.87	2.81	22833.94	6315.35

Note :
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OTH = Line Haul Vehicle + School Bus + Urban Bus + Motor Home
P30SCAB.prn, P30VENT.PRN, P30ANTE.PRN, P30VICT.PRN
P30COAC.PRN
For Rule 2202 : VOC = 34.96 CO = 368.91 NOx = 27.76 PM10 = 14.20
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7.4 BIOLOGICAL RESOURCES TABLES – CALIFORNIA DEPARTMENT OF FISH AND GAME NATURAL DIVERSITY DATABASE (CNDDB)

(Please see the following pages)

Table 3.7-3: Special Status Species Reported in the SCAG Region

Scientific Name	*Common Name*	*Status*				*Counties Where Reported*
		Federal	State	CDFG	CNPS	
Non-Vascular Plants						
Graphis saxorum	Baja Rock Lichen	None	None			LA
Vascular Plants						
Achnatherum aridum	Mormon Needle Grass	None	None		2	SB
Acleisanthes logniflora	Angel Trumpets	None	None		2	RIV
Allium munzii	Munz's Onion	Endangered	Threatened		1B	RIV
Allium nevadense	Nevada Onion	None	None		2	SB
Ambrosia pumila	San Diego Ambrosia	Species of Concern	None		1B	RIV
Ammoselinum giganteum	Desert Sand Parsley	None	None		2	RIV
Androstephium breviflorum	Small-Flowered Androstephium	None	None		2	RIV, SB
Antennaria marginata	White-Margined Everlasting	None	None		2	SB
Antirrhinum cyathiferum	Deep Canyon Snapdragon	None	None		2	RIV
Aphanisma blitoides	Aphanisma	Species of Concern	None		1B	LA, OR, VEN
Arabis breweri var pecuniaria	San Bernardino Rock Cress	Species of Concern	None		1B	SB
Arabis dispar	Pinyon Rock Cress	None	None		2	RIV, SB
Arabis hoffmannii	Hoffman's Rock Cress	Endangered	None		1B	VEN
Arabis johnstonii	Johnston's Rock Cress	Species of Concern	None		1B	RIV
Arabis parishii	Parish's Rock Cress	Species of Concern	None		1B	SB
Arabis pulchra var munciensis	Darwin Rock Cress	None	None		2	RIV, SB
Arabis shockleyi	Shockley's Rock Cress	None	None		2	SB
Arctomecon merriamii	White Bear Poppy	Species of Concern	None		1B	SB
Arctostaphylos catalinae	South Catalina Island Manzanita	Species of Concern	None		1B	LA
Arctostaphylos gabrienlensis	San Gabriel Manzanita	Species of Concern	None		1B	LA
Arctostaphylos peninsularis ssp peninsularis	Peninsular Manzanita	None	None		2	RIV
Arctostaphylos rainbowensis	Rainbow Manzanita	None	None		1B	RIV
Arenaria paludicola	Marsh Sandwort	Endangered	Endangered		1B	RIV, SB
Arenaria ursina	Big Bear Valley Sandwort	Threatened	None		1B	SB
Argyrochosma limitanea var limitanea	Cloak Fern	None	None		2	SB
Astragalus albens	Cushenbury Milk-Vetch	Endangered	None		1B	SB
Astragalus allochrous var playanus	Playa Milk-Vetch	None	None		2	SB
Astragalus brauntonii	Braunton's Milk-Vetch	Endangered	None		1B	LA, OR, VEN
Astragalus cimae var cimae	Cima Milk-Vetch	None	None		1B	SB
Astragalus insularis var harwoodii	Harwood's Milk Vetch	None	None		2	IMP, RIV
Astragalus jaegerianus	Lane Mountain Milk-Vetch	Endangered	None		1B	SB
Astragalus lentiginosus var antonius	San Antonio Milk-Vetch	Species of Concern	None		1B	LA, SB
Astragalus lentiginosus var cachellae	Coachella Valley Milk-Vetch	Endangered	None		1B	RIV
Astragalus lentiginosus var sierrae	Big Bear Valley Milk-Vetch	Species of Concern	None		1B	SB
Astrgalus leucolobus	Big Bear Valley Woollypod	Species of Concern	None		1B	LA, RIV, SB, VEN
Astragalus magdalenae var personii	Peirson's Milk-Vetch	Threatened	Endangered		1B	IMP
Astragalus nevinii	San Clemente Island Milk-Vetch	Species of Concern	None		1B	LA
Astragalus pachypus var jaegeri	Jaeger's Milk-Vetch	Species of Concern	None		1B	RIV
Astragalus preussii var laxiflorus	Lancaster Milk-Vetch	Species of Concern	None		1B	LA
Astragalus preussii var preussii	Preuss's Milk-Vetch	None	None		2	SB
Astragalus pyncnostachyus var lanosissimus	Ventura Marsh Milk-Vetch	Proposed Endangered	Endangered		1A	LA, OR, VEN
Astragalus traskiae	Trask's Milkvetch	Species of Concern	Rare		1B	VEN
Astragalus tricarinatus	Triple-Ribbed Milk Vetch	Endangered	None		1B	RIV, SB
Astrolepis cochisensis	Scaly Cloak Fern	None	None		2	SB
Atriplex coronata var notatior	San Jacinto Valley Crownscale	Endangered	None		1B	RIV
Atriplex coulteri	Coulter's Saltbrus	None	None		1B	LA, OR, SB
Atriplex pacifica	South Coast Saltscale	Species of Concern	None		1B	LA, OR, RIV, VEN
Atriplex parishii	Parish's Brittlescale	Species of Concern	None		1B	LA, OR, RIV, SB
Atriplex serenana var davidsonii	Davidson's Saltscale	None	None		1B	LA, OR, VEN
Ayenia compacta	Ayenia	None	None		2	RIV, SB
Baccharis malibuensis	Malibu Baccharis	None	None			LA

Berberis nevinii	Nevin's Barberry	Endangered	Endangered		1B	LA, RIV, SB
Berberis pinnata ssp insularis	Island Barberry	Endangered	Endangered		1B	VEN
Bergerocactus emoryi	Golden-Spined Cereus	None	None		2	LA
Botrychium crenulatum	Scalloped Moonwort	Species of Concern	None		1B	LA, SB
Bouteloua trifida	Red Grama	None	None		2	SB
Brodiaea flifolia	Thread-Leaved Brodiaea	Threatened	Endangered		1B	LA, OR, RIV, SB
Brodiaea kinkiensis	San Clemente Island Brodiaea	Species of Concern	None		1B	LA
Brodiaea orcutti	Orcutt's Brodiaea	Species of Concern	None		1B	RIV
Bursera microphylla	Elephant Tree	None	None		2	IMP
Calliandra eriophylla	Fairyduster	None	None		2	IMP
Calochortus clavata var gracilis	Slender Mariposa Lily	Species of Concern	None		1B	LA
Calochortus palmeri var munzii	Munz's Mariposa Lily	Species of Concern	None		1B	RIV
Calochortus palmeri var palmeri	Palmer's Mariposa Lily	Species of Concern	None		1B	LA, RIV, SB, VEN
Calochortus plummerae	Plummer's Mariposa Lily	Species of Concern	None		1B	LA, OR, RIV, SB, VEN
Calochortus striatus	Alkali Mariposa Lily	Species of Concern	None		1B	LA, SB
Calochortus weedii var intermidius	Intermediate Mariposa Lily	Species of Concern	None		1B	LA, OR, RIV, SB
Calochortus weedii var vestus	Late-Flowered Mariposa Lily	Species of Concern	None		1B	VEN
Calystegia peirsonii	Peirson's Morning-Glory	Species of Concern	None		4	LA
Calystegia sepium ssp binghamiae	Santa Barbara Morning-Glory	None	None		1B	LA
Camissonia guadalupensis ssp clementina	San Clemente island Evening-Primrose	Species of Concern	None		1B	LA
Canbya candida	Pygmy Poppy	None	None		1B	LA, SB
Carex comosa	Bristly Sedge	None	None		2	SB
Carnegiea gigantea	Saguaro	None	None		2	IMP, SB
Castela emoryi	Crucifixion Thorn	None	None		2	IMP, RIV, SB
Castilleja cinerea	Ash-Gray Indian Paintbrush	Threatened	None		1B	SB
Castilleja gleasonii	Mt. Gleason Indian Paintbrush	Species of Concern	Rare		1B	LA
Castilleja grisea	San Clemente Island Indian Paintbrush	Endangered	Endangered		1B	LA
Castilleja lanata ssp hololeuca	White-Felted Indian Paintbrush	None	None		1B	VEN
Castilleja lasiorhyncha	San Bernardino Mountains Owl-Clover	Species of Concern	None		1B	RIV, SB
Caulanthus simulans	Payson's Jewel-Flower	Species of Concern	None		4	OR, RIV, SB
Ceanothus cyaneus	Lakeside Ceanothus	Species of Concern	None		1B	RIV
Ceanothus ophiochilus	Vail Lake Ceanothus	Threatened	Endangered		1B	RIV
Cercocarpus traskiae	Catalina Island Mountain-Mohagany	Endangered	Endangered		1B	LA
Chaenactis carphoclinia var peirsonii	Peirson's Pincushion	None	None		1B	IMP
Chamaesyce arizonica	Arizona Spurge	None	None		2	RIV
Chamaesyce platysperma	Flat-Seeded Spurge	Species of Concern	None		1B	RIV, SB
Cheilanthes wootonii	Wooton's Lace Fern	None	None		2	SB
Chorizanthe parryi var fernandina	San Fernando Valley Spineflower	Species of Concern	Candidate Endangered		1A	LA
Chorizanthe parryi var parryi	Parry's Spineflower	Species of Concern	None		3	LA, RIV, SB
Chorizanthe polygonoides var longispina	Long-Spined Spineflower	Species of Concern	None		1B	RIV
Claytonia lanceolata var peirsonii	Peirson's Spring Beauty	Species of Concern	None		1B	SB
Comarostaphylis diversifolia ssp diversifolia	Summer Holly	Species of Concern	None		1B	OR, RIV
Cordylanthus maritimus ssp maritimus	Salt Marsh Bird's-Beak	Endangered	Endangered		1B	LA, OR, SB, VEN
Cordylanthus parviflorus	Purple Bird's-Beak	None	None		1B	SB
Cordylanthus tecopensis	Tecopa Bird's-Beak	Species of Concern	None		1B	SB
Croton wigginsii	Wiggin's Croton	None	Rare		2	IMP
Cryptantha clokeyi	Clokey's Cryptantha	None	None		1B	SB
Cryptantha traskiae	Trask's Cryptantha	Species of Concern	None		1B	LA, VEN
Cupressus forbesii	Tecate Cypress	Species of Concern	None		1B	OR, RIV
Cymopterus deserticola	Desert Cymopterus	Species of Concern	None		1B	LA, SB
Cymopterus gilmanii	Gilman's cymopterus	None	None		2	SB
Delphinium hesperium ssp cuyamacae	Cuyamaca Larkspur	Species of Concern	Rare		1B	RIV
Delphinium parryi ssp blochmaniae	Dune Larkspur	Species of Concern	None		1B	VEN
Delphinium variegatum ssp kinkiense	San Clemente Island Larkspur	Endangered	Endangered		1B	LA
Delphinium variegatum ssp thornei	Thorne's Royal Larkspur	Species of Concern	None		1B	LA
Dendromecon harfordii var rhamnoides	Island Tree Poppy	Species of Concern	None		1B	LA

Dissanthelium californicum	California Dissanthelium	Species of Concern	None		1A	LA
Ditaxis californica	California Ditaxis	Species of Concern	None		1B	RIV
Ditaxis clariana	Glandular Ditaxis	None	None		2	IMP, SB
Dithyrea maritima	Beach Spectaclepod	Species of Concern	Threatened		1B	LA, VEN
Dodecahema leptoceras	Slender-Horned Spineflower	Endangered	Endangered		1B	LA, RIV, SB
Dryopteris filix-mas	Male Fern	None	None		2	SB
Dudleya abramsii ssp affinis	San Bernardino Mountains Dudleya	Species of Concern	None		1B	SB
Dudleya abramsii ssp parva	Conejo Dudleya	Threatened	None		1B	VEN
Dudleya blochmaniae ssp blochmaniae	Blochman's Dudleya	Species of Concern	None		1B	LA, OR, VEN
Dudleya cymosa ssp crebrifolia	San Gabriel River Dudleya	Species of Concern	None		1B	LA
Dudleya cymosa ssp marcescens	Marcescent Dudleya	Threatened	Rare		1B	LA, VEN
Dudleya cymosa ssp ovatifolia	Santa Monica Mountains Dudleya	Threatened	None		1B	LA, OR, VEN
Dudleya densiflora	San Gabriel Mountains Dudleya	Species of Concern	None		1B	LA
Dudleya multicaulis	Many-Stemmed Dudleya	Species of Concern	None		1B	LA, OR, RIV, SB
Dudleya stolonifera	Laguna Beach Dudleya	Threatened	Threatened		1B	OR
Dudleya verityi	Verity's Dudleya	Threatened	None		1B	VEN
Dudleya virens	Bright Green Dudleya	Species of Concern	None		1B	LA, VEN
Dudleya viscida	Stick Dudleya	Species of Concern	None		1B	OR, RIV
Echinocereus engelmannii var howei	Howe's Hedgehog Cactus	Species of Concern	None		1B	SB
Enneapogon desvauxii	Nine-Awned Pappus Grass	None	None		2	SB
Eriastrum densifolium ssp sanctorum	Santa Ana River Woollystar	Endangered	Endangered		1B	OR, RIV, SB
Erigeron breweri var bisanctus	Pious Daisy	None	None		1B	LA, SB
Erigeron parishii	Parish's Daisy	Threatened	None		1B	RIV, SB
Erigeron uncialis var uncialis	Limesone Daisy	None	None		2	SB
Eriogonum bifurcatum	Forked Buckwheat	Species of Concern	None		1B	SB
Eriogonum crocatum	Conejo Buckwheat	Species of Concern	Rare		1B	VEN
Eriogonum ericifolium var thornei	Thorne's Buckwheat	Species of Concern	Endangered		1B	SB
Eriogonum foliosum	Leafy Buckwheat	None	None		1B	RIV
Eriogonum giganteum var formosum	San Clemente Island Buckwheat	Species of Concern	None		1B	LA
Eriogonum grande var timorum	San Nicolas Island Buckwheat	Species of Concern	Endangered		1B	VEN
Eriogonum kennedyi var alpigenum	Southern Alpine Buckwheat	None	None		1B	LA, SB
Eriogonum kennedyi var austromontanum	Southern Mountain Buckwheat	Threatened	None		1B	SB
Eriogonum microthecum var johnstonii	Johnston's Buckwheat	Species of Concern	None		1B	LA, SB
Eriogonum ovalifolium var vineum	Cushenbury Buckwheat	Endangered	None		1B	SB
Eriogonum umbellatum var juniporinum	Juniper Buckwheat	None	None		2	SB
Erioneuron pilosum	Hair Erioneuron	None	None		2	SB
Eriophyllum mohavense	Barstow Woolly Sunflower	Species of Concern	None		1B	SB
Eriophyllum nevinii	Nevin's Woolly Sunflower	Species of Concern	None		1B	LA
Eryngium aristulatum var parishii	San Diego Button Celery	Endangered	Endangered		1B	RIV
Erysimum insulare ssp insulare	Island Wallflower	Species of Concern	None		1B	VEN
Eschscholzia minutiflora ssp twisselmannii	Red Rock Poppy	Species of Concern	None		1B	SB
Escobaria vivipara var alversonii	Foxtail Cactus	Species of Concern	None		1B	RIV, SB
Escobaria vivipara var rosea	Viviparous Foxtail Cactus	None	None		1B	SB
Eucnide repestris	Rock Nettle	None	None		2	IMP
Euphorbia exstipulata var exstipulata	Clark Mountain Spurge	None	None		2	SB
Euphorbia misera	Cliff Spruge	None	None		2	LA, OR, RIV
Fimbristylis thermalis	Hot Springs Fimbristylis	None	None		2	SB
Fritillaria ojaiensis	Ojai Fritillary	Species of Concern	None		1B	VEN
Fremontodendrom mexicanum	Mexican Flannelbush	Endangered	Rare		1B	LA
Galium angustifolium ssp jacinticum	San Jacinto Mountains Bedstraw	None	None		1B	RIV
Galium californicum ssp primum	California Bedstraw	Species of Concern	None		1B	RIV, SB
Galium catalinense ssp acrispum	San Clemente Island Bedstraw	Species of Concern	Endangered		1B	LA
Galium grande	San Gabriel Bedstraw	Species of Concern	None		1B	LA
Galium hilendiae ssp kingstonense	Kinston Mountains Bedstraw	Species of Concern	None		1B	SB
Gallium wrightii	Wright's Bedstraw	None	None		2	SB
Galvezia speciosa	Island Snapdragon	Species of Concern	None		1B	LA

Gentiana fremontii	Moss Gentian	None	None		2	SB
Geraea viscida	Sticky Geraea	None	None		2	IMP
Gilia maculata	Little San Bernardino Mountains Gilia	Species of Concern	None		1B	RIV, SB
Gilia ripleyi	Ripley's Gila	None	None		2	SB
Githopsis diffusa ssp filicaulis	Mission Canyon Bluecup	Species of Concern	None		1B	RIV
Glossopetalon pungens	Pungent Glossopetalon	Species of Concern	None		1B	SB
Harpagonella palmeri	Palmer's Grapplinghook	Species of Concern	None		2	LA, OR, RIV
Hazardia cana	San Clemente Island Hazardia	Species of Concern	None		1B	LA
Helianthemum greenei	Island Rush-Rose	Threatened	None		1B	LA
Helianthus niveus ssp tephrodes	Algodones Dune's Sunflower	Species of Concern	Endangered		1B	IMP
Helianthus nuttallii ssp parishii	Los Angeles Sunflower	Species of Concern	None		1A	LA, OR, SB
Hemizonia minthornii	Santa Susana Tarplant	Species of Concern	Rare		1B	LA, VEN
Hemizonia mohavensis	Mojave Tarplant	Species of Concern	Endangered		1A	RIV, SB
Hemizonia parryi ssp australis	Southern Tarplant	Species of Concern	None		1B	LA, OR, VEN
Hemizonia pungens ssp laevis	Smooth Tarplant	Species of Concern	None		1B	RIV, SB
Herissantia crispa	Curly Herissantia	None	None		2	IMP
Heuchera hirsuitissima	Shaggy-Haired Alumroot	None	None		1B	RIV
Heuchera maxima	Island Alumroot	Species of Concern	None		1B	VEN
Heuchera parishii	Parish's Alumroot	None	None		1B	RIV, SB
Horkelia wilderae	Barton's Flat Horkelia	Species of Concern	None		1B	SB
Hulsea mexicana	Mexican Hulsea	None	None		2	IMP
Ipomopsis effusa	Baja California Ipomopsis	None	None		2	IMP
Ipomopsis tenuifolia	Slender-leaved Ipomopsis	None	None		2	IMP
Ivesia argyrocoma	Silver-Haired Ivesia	Species of Concern	None		1B	SB
Ivesia callida	Tahquitz Ivesia	Species of Concern	Rare		1B	RIV
Koeberlinia spinosa ssp tenuispina	Crown-of-Thorns	None	None		2	IMP
Lasthenia glabrata ssp coulteri	Coulter's Goldfields	Species of Concern	None		1B	LA, OR, RIV, SB, VEN
Lavatera assurgentiflora ssp assurgentiflora	Island Mallow	Species of Concern	None		1B	VEN
Lavatera assurgentiflora ssp glabra	Southern Island Mallow	Species of Concern	None		1B	LA
Layia heterotricha	Pale-Yellow Layia	Species of Concern	None		1B	VEN
Lepechenia cardiophylla	Heart-Leaved Pitcher Sage	Species of Concern	None		1B	OR, RIV
Lepidium virginicum var robinsonii	Robinson's Pepper-Grass	None	None		1B	LA, OR, RIV, SB
Leptodactylon jaegeri	San Jacinto Prickly Phlox	None	None		1B	RIV
Lesquerella kingii ssp bernardina	San Bernardino Mountains Bladderpod	Endangered	None		1B	SB
Lilium parryi	Lemon Lily	Species of Concern	None		1B	LA, RIV, SB
Limnanthes gracilis ssp parishii	Parish's Meadowfoam	Species of Concern	Endangered		1B	RIV
Linanthus arenicola	Sand Linanthus	None	None		2	SB
Linanthus concinnus	San Gabriel Linanthus	Species of Concern	None		1B	LA, SB
Linanthus floribundus ssp hallii	Santa Rosa Mountains Linanthus	None	None		1B	RIV
Linanthus killipii	Baldwin Lake Linanthus	Species of Concern	None		1B	SB
Linanthus orcuttii	Orcutt's Linanthus	Species of Concern	None		1B	RIV, SB
Linanthus pygmaeus ssp pygmaeus	Pygmy Linanthus	None	None		1B	LA
Lithophragma maximum	San Clemente Island Woodland Star	Endangered	Endangered		1B	LA
Loeflingia squarrosa var artemisiarum	Sagebrush leflingia	None	None		1B	LA
Lomatium insulare	San Nicolas Island Lomatium	Species of Concern	None		1B	LA, VEN
Lotus argophyllus var adsurgens	San Clemente Island Bird's-Foot Trefoil	Species of Concern	Endangered		1B	LA
Lotus argyraeus var multicaulis	Scrub Lotus	None	None		1B	SB
Lotus argyraeus var notitius	Providence Mountains Lotus	None	None		1B	SB
Lotus dendroideus var traskiae	San Clemente Island Lotus	Endangered	Endangered		1B	LA
Lupinus excubitus var medius	Mountain Springs Bush Lupine	Species of Concern	None		1B	IMP
Lupinus guadalupensis	Guadalupe Island Lupine	Species of Concern	None		1B	LA
Lycium brevipes var hassei	Santa Catalina Island Desert-Thorn	None	None		1B	LA
Lycium parishii	Parhish's Desert-Thorn	None	None		2	IMP, RIV, SB
Lycium verrucosum	San Nicolas Island Desert-Thorn	None	None		1A	VEN
Lycurus phleoides var phleoides	Wolftail	None	None		2	SB
Lyonothamnus floribundus ssp asplenifolius	Santa Cruz Island Ironwood	Species of Concern	None		1B	LA

Lyonothamnus floribundus ssp floribundus	Santa Catalina Island Ironwood	Species of Concern	None		1B	LA
Machaeranthera canescens var ziegleri	Ziegler's Aster	None	None		1B	RIV
Malacothamnus clementinus	San Clemente Island Bush Mallow	Endangered	Endangered		1B	LA
Malacothamnus davidsonii	Davidson's Bush Mallow	Species of Concern	None		1B	LA
Malacothamnus parishii	Parish's Bush Mallow	Species of Concern	None		1A	SB
Malacothrix squalida	Island Malacothrix	Endangered	None		1B	VEN
Malaxis monophyllos ssp brachypoda	Adder's-Mouth	None	None		2	RIV, SB
Malperia tenuis	Brown Turbans	None	None		2	IMP
Marina orcuttii var orcuttii	California Marina	Species of Concern	None		1B	RIV
Matelea parvifolia	Spearleaf	None	None		2	RIV, SB
Maurandya antirrhiniflora ssp antirrhiniflora	Violet Twining Snapdragon	None	None		2	SB
Mentzelia hirsutissima	Hairy Stickleaf	None	None		2	IMP
Mimulus exiguus	San Bernardino Mountains Monkeyflower	Species of Concern	None		1B	SB
Mimulus mohavensis	Mohave Monkeyflower	Species of Concern	None		1B	SB
Mimulus purpureus	Purple Monkeyflower	Species of Concern	None		2	SB
Mimulus traskiae	Santa Catalina Island Monkeyflower	Species of Concern	None		1A	LA
Monardella hypoleuca ssp lanata	Felt-Leaved Monardella	None	None		1B	OR
Monardella linoides ssp oblonga	Flax-Like Monardella	Species of Concern	None		1B	VEN
Monardella macrantha ssp hallii	Hall's Monardella	None	None		1B	LA, OR, RIV, SB
Monardella pringlei	Pringle's Monardella	Species of Concern	None		1A	RIV, SB
Monardella robisonii	Robison's Monardella	Species of Concern	None		1B	RIV, SB
Muhlenbergia appressa	Appressed Muhly	None	None		2	LA, SB
Muhlenbergia arsenei	Tough Muhly	None	None		2	SB
Muhlenbergia californica	California Muhly	None	None		1B	LA, SB
Muhlenbergia fragilis	Delicate Muhly	None	None		2	SB
Muhlenbergia pauciflora	Few-Flowered Muhly	None	None		2	SB
Muilla clevelandii	San Diego Goldenstar	Species of Concern	None		1B	RIV
Munroa squarrosa	False Buffalo-Grass	None	None		2	SB
Myosurus minimus ssp apus	Little Mousetail	Species of Concern	None		3	RIV
Nama dichotomum var dichotomum	Forked Purple Mat	None	None		2	SB
Nama stenocarpum	Mud Nama	None	None		2	IMP, LA
Navarretia fossalis	Spreading Navarretia	Threatened	None		1B	RIV
Navarretia peninsularis	Baja Navarretia	None	None		1B	SB, VEN
Nemacaulis denudata var denudata	Coast Woolly-Heads	None	None		2	LA, OR
Nenmacaulis denudata var gracilis	Slender Woolly-Heads	None	None		2	IMP, RIV, SB
Opuntia basilaris var brachyclada	Short-Joint Beavertail	Species of Concern	None		1B	LA, SB
Opuntia curvospina	Curved-Spine Beavertail	None	None		2	SB
Opuntia munzii	Munz's Cholla	Species of Concern	None		1B	IMP, RIV
Opuntia wigginsii	Wiggin's Cholla	None	None		3	IMP, RIV
Orcuttia californica	California Orcutt Grass	Endangered	Endangered		1B	LA, RIV, VEN
Orobanche parishii ssp brachyloba	Short-Lobed Broom-Rape	Species of Concern	None		1B	LA, VEN
Orobanche valida ssp valida	Rock Creek Broom-Rape	Species of Concern	None		1B	LA, VEN
Oxytheca parishii var abramsii	Abram's Oxytheca	None	None		1B	VEN
Oxytheca parishii var cienegensis	Cienega Seca Oxytheca	Species of Concern	None		1B	SB
Oxytheca parishii var goodmaniana	Cushenbury Oxytheca	Endangered	None		1B	SB
Palafoxia arida var gigantea	Giant Spanish-Needle	Species of Concern	None		1B	IMP
Pellaea truncata	Cliff Brake	None	None		2	SB
Penstemon calcareus	Limestone Beardtongue	None	None		2	SB
Penstemon californicus	California Beardtongue	None	None		1B	RIV
Penstemon stephensii	Stephen's Beardtongue	Species of Concern	None		1B	SB
Pentachaeta lyonii	Lyon's Pentachaeta	Endangered	Endangered		1B	LA, VEN
Perideridia parishii ssp parishii	Parish's Yampah	None	None		2	SB
Phacelia anelsonii	Aven Nelson's Phacelia	None	None		1B	SB
Phacelia cinerea	Ashy Phacelia	Species of Concern	None		1A	VEN
Phacelia floribunda	Many-Flowered Phacelia	Species of Concern	None		1B	LA
Phacelia mustelina	Death Valley Round-Leaved Phacelia	None	None		1B	SB

Phacelia parishii	Parish's Phacelia	Species of Concern	None		2	SB
Phacelia pulchella var gooddingii	Goodding's Phacelia	None	None		2	SB
Phacelia stellaris	Brand's Phacelia	None	None		1B	LA
Phacelia suaveolens ssp keckii	Santiago Peak Phacelia	Species of Concern	None		1B	OR, RIV
Phaseolus filiformis	Slender-Stem Bean	None	None		2	RIV
Phlox dolichantha	Big Bear Valley Phlox	Species of Concern	None		1B	SB
Pholisma sonorae	Sand Food	Species of Concern	None		1B	IMP
Pholistoma auritum var arizonicum	Arizona Pholistoma	None	None		2	SB
Physalis lobata	Lobed Ground-Cherry	None	None		2	SB
Pilostyles thurberi	Thurber's Pilostyles	None	None		4	IMP
Piptatherum micranthus	Small-Flowered Rice Grass	None	None		2	SB
Poa atropurpurea	San Bernardino Blue Grass	Endangered	None		1B	SB
Poliomintha incana	Frosted Mint	None	None		1A	SB
Populus angustifolia	Narrow-Leaved Cottonwood	None	None		2	SB
Potentilla glandulosa ssp ewanii	Ewan's Cinquefoil	None	None		1B	LA
Potentilla multijuga	Ballona Cinquefoil	Species of Concern	None		1A	LA
Potentilla rimicola	Cliff Cinquefoil	None	None		1B	RIV
Puccinellia parishii	Parish's Alkali Grass	Species of Concern	None		1B	SB
Pyrrocoma uniflora var gossypina	Bear Valley Pyrrocoma	Species of Concern	None		1B	SB
Quercus dumosa	Nuttall's Scrub Oak	Species of Concern	None		1B	OR
Ribes divaricatum var parishii	Parish's Gooseberry	Species of Concern	None		1B	LA, SB
Rorippa gambelii	Gambel's Water Cress	Endangered	Threatened		1B	SB
Sagittaria sanfordii	Sanford's Arrowhead	Species of Concern	None		1B	OR, VEN
Salvia greatae	Orocopia Sage	Species of Concern	None		1B	RIV, SB
Sanvitalia abertii	Abert's Sanvitalia	None	None		2	SB
Satureja chandleri	San Miguel Savory	None	None		4	OR, RIV
Scleropogon brevifolius	Burro Grass	None	None		2	SB
Scrophularia villosa	Santa Catalina Figwort	Species of Concern	None		1B	LA
Scutellaria bolanderi ssp austromontana	Southern Skullcap	None	None		1B	LA, RIV, SB
Selaginella eremophila	Desert Spike-Moss	None	None		2	IMP, RIV
Senecio aphanactis	Rayless Ragwort	None	None		2	LA, OR, VEN
Senecio bernardinus	San Bernardino Ragwort	Species of Concern	None		1B	SB
Senna covesii	Coves's Cassia	None	None		2	RIV, SB
Sibara filifolia	Santa Cruz Island Rock Cress	Endangered	None		1B	LA
Sidalcea hickmanii ssp parishii	Parish's Checkerbloom	Candidate	Rare		1B	SB
Sidalcea neomexicana	Salt Spring Checkerbloom	None	None		2	LA, RIV, SB, VEN
Sidalcea pedata	Bird-Foot Checkerbloom	Endangered	Endangered		1B	SB
Sphaeralcea rusbyi var eremicola	Rusby's Desert-Mallow	Species of Concern	None		1B	SB
Sphenopolis obtusata	Prairie Wedge Grass	None	None		2	SB
Stephanomeria blairii	Blair's Stephanomeria	Species of Concern	None		1B	LA
Streptanthus bernardinus	Laguna Mountains Jewel-Flower	None	None		1B	RIV, SB
Streptanthus campestris	Southern Jewel-Flower	None	None		1B	RIV, SB
Stylocline masonii	Mason's Neststraw	Species of Concern	None		1B	LA
Stylocline sonorensis	Mesquite Neststraw	None	None		2	RIV
Taraxacum californicum	California Dandelion	Endangered	None		1B	SB
Tetracoccus dioicus	Parry's Tetracoccus	Species of Concern	None		1B	OR, RIV
Thelypodium stenopetalum	Slender-Petaled Thelypodium	Endangered	Endangered		1B	SB
Thelypteris puberula var sonorensis	Sonoran Maiden Fern	None	None		2	LA, RIV, SB
Trichocoronis wrightii var wrightii	Wright's Trichocoronis	None	None		1B	RIV
Trichostema austromontanum ssp compactum	Hidden Lake Bluecurls	Threatened	None		1B	RIV
Triteleia clementina	San Clemente Island Triteleia	Species of Concern	None		1B	LA
Verbesina dissita	Crownbeard	Threatened	Threatened		1B	OR
Viola aurea	Golden Violet	None	None		2	SB
Wislizenia refracta ssp refracta	Jackass-Clover	None	None		2	RIV, SB
Woodsia plummerae	Plummer's Woodsia	None	None		2	SB
Xylorhiza cognata	Mecca-Aster	Species of Concern	None		1B	IMP, RIV

Xylorhiza orcuttii	Orcutt's Woody-Aster	Species of Concern	None		1B	IMP
Snails and Slugs						
Eremarionta immaculata	White Desertsnail	Species of Concern	None			RIV
Eremarionta morongoana	Morongo (=Colorado) Desertsnail	Species of Concern	None			RIV
Eremarionta rowelli mccoiana	California McCoy Snail	Species of Concern	None			RIV
Haplotrema catalinense	Santa Catalina Lancetooth	None	None			LA
Helminthoglypta ayresiana sanctaecrucis	Ayer's Snail	None	None			VEN
Helminthoglypta mohaveana	Victorville Shoulderband	Species of Concern	None			SB
Micrarionta feralis	San Nicolas Islandsnail	Species of Concern	None			VEN
Micrarionta gabbi	San Clemente Islandsnail	Species of Concern	None			LA
Micrarionta opuntia	Pricklypear Islandsnail	Species of Concern	None			VEN
Pristiloma shepardae	Shepard's Snail	None	None			LA
Radiocentrum (=oreohelix) avalonense	Catalina Mountain Snail	Species of Concern	None			LA
Sterkia clementina	San Clemente Island Blunt-Top Snail	None	None			LA, VEN
Tryonia imitator	Mimic Tryonia (=CA Brackwaterish Snail)	Species of Concern	None			LA, OR, VEN
Xerarionta intercisa	Horseshoe Snail	None	None			LA
Xerionata redimita	Wreathed Island Snail	None	None			LA
Crustaceans						
Branchinecta lynchi	Vernal Pool Fairy Shrimp	Threatened	None			RIV, VEN
Branchinecta sandiegonensis	San Diego Fairy Shrimp	Endangered	None			OR
Streptocephalus woottoni	Riverside Fairy Shrimp	Endangered	None			OR, RIV, VEN
Grasshoppers, Katydids, and Crickets						
Ammopelmatus kelsoensis	Kelso Jerusalem Cricket	Species of Concern	None			SB
Macrobaenetes kelsoensis	Kelso Giant Sand Treader Cricket	Species of Concern	None			SB
Macrobaenetes valgum	Coachella Giant Sand Treader Cricket	Species of Concern	None			RIV
Neduba longipennis	Santa Monica Shieldback Katydid	Species of Concern	None			LA
Psychomastix deserticola	Desert Monkey Grasshopper	Species of Concern	None			SB
Stenopelmatus cahuilaensis	Coachella Valley Jerusalem Cricket	Species of Concern	None			RIV
True Bugs						
Belostoma saratogae	Saratoga Springs Belostoman Bug	Species of Concern	None			SB
Pelocoris shosone	Amargosa Naucorid Bug	Species of Concern	None			SB
Lacewings						
Oliarces clara	Cheeseweed Owlfly	Species of Concern	None			RIV, SB
Beetles						
Anomala carlsoni	Carlson's Dune Beetle	None	None			IMP
Anomala hardyorum	Hardy's Dune Beetle	None	None			IMP
Cicindela gabbii	Tiger Beetle	None	None			OR
Cicindela hirticolllis gravida	Sandy Beach Tiger Beetle	Species of Concern	None			LA, VEN
Cicindela senilis frosti	Tiger Beetle	None	None			LA, OR, VEN
Coelus globosus	Globose Dune Beetle	Species of Concern	None			LA, VEN
Hydroporus simplex	Simple Hydroporous Diving Beetle	Species of Concern	None			SB
Polyphylla eratica	Death Valley June Beetle	Species of Concern	None			SB
Onychobaris langei	Lange's El Segundo Dune Weevil	Species of Concern	None			LA
Pseudocotalpa andrewsi	Andrew's Dune Scarab Beetle	Species of Concern	None			IMP
Trigonoscuta dorothea dorothea	Dorothy's El Segundo Dune Weevil	Species of Concern	None			LA, OR
Flies						
Brennania belkini	Belkin's dune Tabanid Fly	None	None			LA
Rhaphiomidas terminatus abdominalis	Delhi Sands Flower-Loving Fly	Endangered	None			SB

Butterflies and Moths						
Danaus plexippus	Monarch Butterfly	None	None			LA, OR, VEN
Eucosma hennei	Henne's Eucosman Moth	Species of Concern	None			LA
Euchloe hyantis andrewsi	Andrew's Marble Butterfly	Species of Concern	None			SB
Euphilotes battoides allyni	El Segundo Blue Butterfly	Endangered	None			LA
Euphydryas editha quino	Quino Checkerspot Butterfly	Endangered	None			RIV
Glaucopsyche lygdamus palosverdesensis	Palos Verdes Blue Butterfly	Endangered	None			LA
Panoquina errans	Wandering (=Saltmarsh) Skipper	Species of Concern	None			LA, OR, VEN
Fish						
Catostomus santaanae	Santa Ana Sucker	Threatened	None	SC		LA, OR, RIV, SB, VEN
Cyprinodon macularius	Desert Pupfish	Endangered	Endangered			IMP, RIV
Cyprinodon nevadensis amargosae	Armagos Pupfish	None	None	SC		SB
Cyprinodon nevadensis williamsoni	Saratoga Springs Pupfish	None	None	SC		SB
Eucyclogobius newberryi	Tidewater Goby	Endangered (proposed de-listing north of Orange County)	None	SC		LA, OR, VEN
Gasterosteus aculeatus williamsoni	Unarmored Threespine Stickleback	Endangered	Endangered			LA, SB, VEN
Gila bicolor mohavensis	Mohave Tui Chub	Endangered	Endangered			LA, SB
Gila orcutti	Arroyo Chub	Species of Concern	None	SC		LA, OR, RIV, VEN
Oncorhynchus mykiss irideus	Southern Steelhead	Endangered	None	SC		LA, VEN
Ptychocheilus lucius	Colorado Squawfish	Endangered	Endangered			IMP
Rhinichthys osculus ssp 1	Amargosa Canyon Speckled Dace	Species of Concern	None	SC		SB
Xyrauchen texanus	Razorback Sucker	Endangered	Endangered			IMP, RIV, SB
Amphibians						
Ambystoma californianse	California Tiger Salamander	Candidate	None			RIV
Batrachoseps aridus	Desert Slender Salamander	Endangered	Endangered	SC		RIV
Batrachoseps sp 5	Guadalupe Creek Slender Salamander	None	None			RIV
Bufo microscaphus californicus	Arroyo Toad	Endangered	None	SC		LA, OR, RIV, SB, VEN
Ensatina eschscholtzii klauberi	Large-Blotched Salamander	Species of Concern	None	SC		RIV
Rana aurora draytonii	California Red-Legged Frob	Threatened	None	SC		LA, RIV, SB
Rana muscosa	Mountain Yellow-Legged Frog	Species of Concern	None	SC		LA, RIV
Scaphiopus hammondii	Western Spadefoot	Species of Concern	None	SC		LA, OR, RIV, VEN
Taricha torosa torosa	Coast Range Newt	None	None	SC		LA, OR
Reptiles						
Anniella pulchra pulchra	Silvery Legless Lizard	Species of Concern	None	SC		LA, RIV
Charina bottai umbratica	Southern Rubber Boa	Species of Concern	Threatened			RIV, SB, VEN
Clemmys marmorata pallida	Southwestern Pond Turtle	Species of Concern	None	SC		LA, OR, RIV, SB,VEN
Cnemidophorus hyperythrus	Orange-Throated Whiptail	Species of Concern	None	SC		LA, OR, RIV, SB
Cnemidophorus tigris multiscutatus	Coastal Western Whiptail	Species of Concern	None			LA, RIV, SB, VEN
Coleonyx switaki	Bare-footed Banded Gecko	Species of Concern	Threatened			IMP
Crotalus ruber ruber	Northern Red-Diamond Rattlesnake	Species of Concern	None	SC		OR, RIV
Diadophis punctatus modestus	San Bernardino Ringneck Snake	Species of Concern	None			SB
Gambelia sila	Blunt-Nosed Leopard Lizard	Endangered	Endangered			VEN
Heloderma suspectum cinctum	Banded Gila Monster	Species of Concern	None	SC		SB
Lampropeltis zonata parvirubra	San Bernardino Mountain Kingsnake	None	None			LA, SB
Lampropeltis zonata pulchra	San Diego Mountain Kingsnake	Species of Concern	None	SC		LA, OR
Phrynosoma coronatum blainvillei	San Diego Horned Lizard	Species of Concern	None	SC		LA, OR, RIV, SB, VEN
Phrynosoma coronatum frontale	California Horned Lizard	Species of Concern	None	SC		LA
Phrynosoma mcalli	Flat-Tailed Horned Lizard	None	None	SC		IMP, RIV
Salvadora hexalepsis virgultea	Coast Patch-Nosed Snake	Species of Concern	None	SC		OR
Thamnophis couchi ssp	Santa Catalina Garter Snake	None	None			LA
Thamnophis hammondii	Two-Striped Garter Snake	Species of Concern	None	SC		OR, RIV, SB, VEN

Uma inornata	Coachella Valley Fringe-Toed Lizard	Threatened	Endangered			RIV
Xantusia riversiana	Island Night Lizard	Threatened	None			LA, VEN
Xerobates agassizii	Desert Tortoise	Threatened	Threatened			IMP, LA, RIV, SB
Birds						
Accipiter cooperii (nesting)	Cooper's Hawk	None	None	SC		IMP, LA, OR, RIV, SB, VEN
Agelaius tricolor (nesting colony)	Tricolored Blackbird	Species of Concern	None	SC		LA, OR, RIV, VEN
Aimophila ruficeps canescens	Southern California Rufous-Crowned Sparrow	Species of Concern	None	SC		RIV, VEN
Amphispiza belli clementeae	San Clemente Sage Sparrow	Threatened	None			LA, RIV
Aquila chrysaetos (nesting and wintering)	Golden Eagle	None	None	SC		OR, RIV, SB
Ardea alba	Great Egret	None	None			IMP, RIV
Ardea herodias (rookery)	Great Blue Heron	None	None			IMP, RIV
Asio flammeus (nesting)	Short-Eared Owl	None	None	SC		IMP, LA,
Asio otus (nesting)	Long-Eared Owl	None	None	SC		RIV, SB
Athene cunicularia (burrow sites)	Burrowing Owl	Species of Concern	None	SC		IMP, LA, OR, RIV, SB, VEN
Buteo swainsoni (nesting)	Swainson's Hawk	None	Threatened			LA, SB
Campylorhynchus brunneicapillus couesi	Coastal Cactus Wren	None	None	SC		OR
Cardinalis cardinalis superba	Northern Cardinal	None	None	SC		RIV, SB
Charadrius alexandrinus nivosus (nesting)	Western Snowy Plover	Threatened	None	SC		LA, OR, RIV, SB, VEN
Circus cyaneus (nesting)	Northern Harrier	None	None	SC		OR
Coccyzus americanus occidentalis (nesting)	Western Yellow-Billed Cuckoo	Candidate	Endangered			LA, IMP, RIV, SB, VEN
Colaptes chrysoides	Gilded Flicker	None	Endangered			IMP, RIV
Cypseloides niger (nesting)	Black Swift	None	None	SC		LA, RIV, SB
Dendroica petechia brewsteri (nesting)	Yellow Warbler	None	None	SC		IMP, RIV, SB, VEN
Dendroica petechia sonorana (nesting)	Sonoran Yellow Warbler	None	None	SC		IMP, RIV, SB
Egretta thula (rookery)	Snowy Egret	None	None			RIV
Elanus leucurus (nesting)	White-Tailed Kite	None	None			RIV
Empidonax traillii (nesting)	Willow Flycatcher	None	Endangered			IMP, RIV, SB
Falco mexicanus	Prairie Falcon	None	None	SC		IMP, LA, RIV, SB, VEN
Gymnogyps californianus	California Condor	Endangered	Endangered			LA, VEN
Haliaeetus leucocephalus (nesting and wintering)	Bald Eagle	Threatened	Endangered			RIV, SB
Icteria virens (nesting)	Yellow-Breasted Chat	None	None	SC		IMP, OR, RIV, SB, VEN
Junco hyemalis caniceps (nesting)	California Gray-Headed Junco	None	None	SC		IMP, RIV, SB
Lanius ludovicianus mearnsi	San Clemente Loggerhead Shrike	Endangered	None			LA
Laterallus jamaicensis coturniculus	California Black Rail	Species of Concern	Threatened			IMP, LA, OR
Melanerpes uropysialis	Gila Woodpecker	None	Endangered			IMP, RIV, SB
Micrathene whitneyi (nesting)	Elf Owl	None	Endangered			IMP, RIV, SB
Myiarchus tyrannulus (nesting)	Brown-Crested Flycatcher	None	None	SC		IMP, RIV, SB
Nycticorax nycticorax	Black-Crowned Night Heron	None	None			RIV
Passerculus sandwichensis beldingi	Belding's Savannah Sparrow	Species of Concern	Endangered			LA, OR, VEN
Pelecanus occidentalis californicus (nesting colony)	California Brown Pelican	Endangered	Endangered			VEN
Phalacrocorax auritus (rookery site)	Double-Crested Cormorant	None	None	SC		VEN
Piranga flava (nesting)	Hepatic Tanager	None	None	SC		SB
Piranga rubra (nesting)	Summer Tanager	None	None	SC		IMP, RIV, SB
Polioptila californica	California Gnatcatcher	Threatened	None	SC		LA, OR, RIV, SB, VEN
Polioptila melanura	Black-Tailed Gnatcatcher	None	None			IMP, RIV
Pyrocephalus rubinus (nesting)	Vermilion Flycatcher	None	None	SC		IMP, RIV, SB
Rallus longirostris levipes	Light-Footed Clapper Rail	Endangered	Endangered			OR, VEN
Rallus longirostris yumanensis	Yuma Clapper Rail	Endangered	Threatened			IMP, RIV, SB
Rallus niger (nesting colony)	Black Skimmer	None	None	SC		IMP
Riparia riparia (nesting)	Bank Swallow	None	Threatened			VEN
Sterna antillarum browni (nesting colony)	California Least Tern	Endangered	Endangered			LA, OR, VEN
Sterna caspia (nesting colony)	Caspian Tern	None	None			IMP
Sterna nilotica vanrossemi (nesting colony)	Van Rossem's Gull-Billed Tern	Species of Concern	None	SC		IMP, RIV
Toxostoma bendirei	Bendire's Thrasher	None	None	SC		RIV, SB

Toxostoma lecontei	Le Conte's Thrasher	None	None	SC		IMP, LA, RIV, SB
Vermivora virginiae (nesting)	Virginia's Warbler	None	None	SC		SB
Vireo bellii arizonae (nesting)	Arizona Bell's Vireo	None	Endangered			IMP, SB
Vireo bellii pusillus (nesting)	Least Bell's Vireo	Endangered	Endangered			LA, OR, RIV, SB, VEN
Vireo vicinior (nesting)	Gray Vireo	None	None	SC		SB
Mammals						
Antrozous pallidus	Pallid Bat	None	None	SC		IMP, OR, RIV, SB
Chaetodipus (=perognathus) fallax fallax	Northwestern San Diego Pocket Mouse	Species of Concern	None	SC		RIV, SB
Corynorhinus townsendii pallenscens	Pale Big-Eared Bat	Species of Concern	None	SC		IMP, RIV, SB
Dipodomys merriami parvus	San Bernardino Kangaroo Rat	Endangered	None	SC		SB
Dipodomys stephensi	Stephen's Kangaroo Rat	Endangered	Threatened			RIV, SB
Enhydra lutris nereis	Southern Sea Otter	Threatened	None			VEN
Eumops perotis californicus	California Mastiff Bat	Species of Concern	None	SC		IMP, OR, RIV, SB, VEN
Lepus californicus bennettii	San Diego Black-Tailed Jackrabbit	Species of Concern	None	SC		RIV
Macrotus californicus	California Leaf-Nosed Bat	Species of Concern	None	SC		IMP, SB
Myotis ciliolabrum	Small-Footed Myotis	Species of Concern	None	SC		SB
Myotis evotis	Long-Eared Myotis	Species of Concern	None			SB
Myotis thysanodes	Fringed Myotis	Species of Concern	None			RIV
Myotis velifer	Cave Myotis	Species of Concern	None	SC		RIV
Myotis volans	Long-Legged Myotis	Species of Concern	None			SB
Neotoma albigula venusta	Colorado Valley Woodrat	None	None			IMP, RIV, SB
Neotoma lepida intermedia	San Diego Desert Woodrat	Species of Concern	None	SC		LA, SB, VEN
Nyctinomops femorasaccus	Pocket Free-Tailed Bat	None	None	SC		RIV
Ovis canadensis cremnobates	Peninsular Bighorn Sheep	Endangered	Threatened			IMP, RIV
Ovis canadensis nelsoni	Nelson's Bighorn Sheep	None	None			IMP, LA, SB
Perognathus alticola alticola	White-Eared Pocket Mouse	Species of Concern	None	SC		SB
Perognathus inornatus inornatus	San Joaquin Pocket Mouse	Species of Concern	None			LA, VEN
Perognathus longimembris brevinasus	Los Angeles Pocket Mouse	Species of Concern	None	SC		RIV
Perognathus longimembris pacificus	Pacific Pocket Mouse	Endangered	None	SC		LA, OR
Sigmodon hispidus eremicus	Yuma Hispid Cotton Bat	Species of Concern	None	SC		IMP
Sorex ornatus willetti	Santa Catalina Shrew	Species of Concern	None	SC		LA
Spermophilus mohavensis	Mohave Ground Squirrel	Species of Concern	Threatened			LA, SB
Spermophilus tereticaudus chlorus	Coachella Valley Round-Tailed Ground Squirrel	Species of Concern	None	SC		RIV
Tamias panamintinus acrus	Kingston Mountain Chipmunk	None	None			SB
Urocyon littoralis	Island Fox	Species of Concern	Threatened			LA, VEN

Source: California Department of Fish and Game. (1999). *Natural Diversity Database.* Sacramento, CA.
U.S. Department of Fish and Wildlife. (1999-2003). *The Federal Register* . Washington D.C.

Table 3.7-4: Special Status Communities Reported in the SCAG Region	
Natural Communities	*Counties Where Reported*
Active desert dunes	IMP
Alkali seep	SB
Amargosa river	SB
Arizonan woodland	SB
California walnut woodland	LA, SB, VEN
Canyon live oak forest	LA
Canyon live-oak ravine forest	RIV, SB, VEN
Cismontane alkali marsh	VEN
Coastal and valley freshwater marsh	RIV, SB, VEN
Crucifixion thorn woodland	IMP, SB
Desert fan palm oasis woodland	IMP, RIV, SB
Island cherry forest	LA
Mainland cherry forest	LA
Maritime succulent scrub	LA, VEN
Mesquite bosque	IMP, RIV, SB
Mojave mixed steppe	SB
Mojave riparian forest	LA, SB
Mojave yucca scrub and steppe	SB
Open engelmann oak woodland	LA
Pebble plains	SB
Riversidian alluvial fan sage scrub	LA, RIV, SB
Sonoran cottonwood willow riparian forest	IMP, RIV
Southern california arroyo chub/santa ana sucker stream	LA, OR, RIV, SB
Southern california coastal lagoon	LA, VEN
Southern california steelhead stream	LA, VEN
Southern california threespine stickleback stream	LA, SB, VEN
Southern coast live oak riparian forest	LA, OR, RIV, SB, VEN
Southern coastal bluff scrub	LA, VEN
Southern coastal salt marsh	LA, OR, VEN
Southern cottonwood willow riparian forest	LA, OR, RIV, SB, VEN
Southern dune scrub	LA, OR, VEN
Southern foredunes	LA, OR, VEN
Southern interior basalt flow vernal pool	RIV
Southern interior cypress forest	OR, RIV
Southern mixed riparian forest	LA, OR, RIV, SB, VEN
Southern riparian forest	LA, RIV, SB, VEN
Southern riparian scrub	LA, OR, RIV, SB, VEN
Southern sycamore alder riparian woodland	LA, OR, RIV, SB, VEN

Table 3.7-5: Large-Scale Protected Areas in the SCAG Region

Ownership	*Name of Protected Area*	*County*
Bureau of Land Management	Lake Cahuilla ACEC	IMP
	Last Chance Canyon ACED	SB
	Little Chuckwalla Mountains Wilderness	IMP, RIV
	Little Pichaco Wilderness	IMP
	Manix ACEC	SB
	Mecca Hills Wilderness	RIV
	Newberry Mountains Wilderness	SB
	North Algodones Dunes Wilderness	IMP
	Old Woman Mountains Wilderness	SB
	Orocopia Mountains Wilderness	RIV
	Palen Dry Lake ACED	RIV
	Palen/McCoy Wilderness	RIV
	Palo Verde Mountains Wilderness	IMP, RIV
	Pichaco Peak Wilderness	IMP
	Rainbow Basin ACEC	SB
	Rasor	SB
	Rodman Mountains Wilderness and ACEC	SB
	San Sebastian Marsh/San Felipe Creek ACEC	IMP
	Santa Rosa Mountains Wilderness and National Scenic Area	RIV
	Sheephole Valley Wilderness	SB
	Singer Geoglyphs ACEC	IMP
	Trona Pinacles	SB
	Turtle Mountains Wilderness	SB
	Upper Johnson Valley Yucca Rings ACEC	SB
	West Mesa ACEC	IMP
	Yuha Basin ACEC	IMP
National Park Service	Channel Islands National Park	VEN
	Death Valley National Park	SB
	Joshua Tree National Park	RIV, SB
	Mojave National Preserve	SB
	Santa Monica Mountains National Recreation Area	LA, VEN
U.S. Fish and Wildlife Service	Cibola National Wildlife Refuge	IMP
	Havasu National Wildlife Refuge	SB
	Hopper Mountain National Wildlife Refuge	VEN
	Imperial National Wildlife Refuge	IMP
	Salton Sea (=Sonny Bono) National Wildlife Refuge	IMP
	Seal Beach National Wildlife Refuge	ORA
U.S. Forest Service	Agua Tibia Wilderness (Cleveland NF)	RIV
	Cucamonga Wilderness (San Bernardino NF)	SB
	San Dimas Experimental Forest (Angelus NF)	LA
	San Gabriel Wilderness (Angelus NF)	LA
	San Gorgonio Wilderness (San Bernardino NF)	RIV, SB
	San Jacinto Wilderness (San Bernardino NF)	RIV
	Santa Rosa Wilderness (San Bernardino NF)	RIV
	Sespe Wilderness (Los Padres NF)	VEN
	Sheep Mountain Wilderness (Angeles NF)	LA, SB
	Sespe Condor Sanctuary	VEN

California Department of Parks and Recreation	Alamitos Beach	OR
	Antelope Valley California Poppy Reserve	LA
	Anza-Borrego Desert State Park	IMP, RIV
	Arthur P. Ripley Desert Woodland	LA
	Backbone Trail Big Rock Beach	LA
	Bolsa Chica State Beach	OR
	Boney Mountain State Wilderness	VEN
	California Citrus State Historic Park	RIV
	Castaic Lake State Recreation Area	LA
	Chino Hills State Park	OR,SB
	Corona Del Mar State Beach	OR
	Crystal Cove State Park	OR
	Dockweiler State Beach	LA
	Doheny State Beach	OR
	Emma Wood State Beach	VEN
	Freeman Canyon CP	LA
	Gorman CP	LA
	Heber dunes State Vehicular Recreation Area	IMP, RIV
	Hungry Valley Oak Woodland Natural Preserve	VEN
	Hungry Valley State Vehicular Recreation Area	LA, VEN
	Huntington State Beach	OR
	Indio Hills Palms	RIV
	Kaslow Nature Preserve	LA
	Kenneth Hahn State Recreation Area	LA
	La Jolla Valley Nature Preserve	VEN
	Lake Perris State Recreation Area	RIV
	Las Tunas State Beach	LA
	Least Tern Nature Preserve	OR
	Leo Carillo State Beach	LA, VEN
	Liberty Canyon Nature Preserve	LA
	Los Encinos State Historic Park	LA
	Malibu Creek State Park	LA
	Malibu Lagoon State Beach	LA
	Mandalay State Beach	VEN
	Manhattan State Beach	LA
	McGrath State Beach	VEN
	Mitchell Caverns Nature Preserve	SB
	Mount San Jacinto State Park	RIV
	Mount San Jacinto State Wilderness	IMP, RIV
	Ocotillo Wells State Vehicular Recreation Area	IMP, RIV
	Oxnard State Beach	VEN
	Pichaco State Recreation Area	IMP, RIV
	Pio Pico State Historic Park	LA
	Point Dume Nature Preserve	LA
	Point Mugu State Park	VEN
	Providence Mountains State Recreation Area	SB
	Redrock Canyon State Park	LA
	Rincon Point State Park	VEN
	Robert H. Meyer Memorial State Beach	LA
	Saddleback Butte State Park	LA
	Salton Sea State Recreation Area	IMP, RIV
	San Buenaventura State Beach	VEN
	San Clemente State Beach	OR
	Santa Clara Estuary Nature Preserve	VEN
	Santa Monica State Beach	LA
	Santa Susana Mountains	LA
	Seccombe Lake State Recreation Area	SB
	Silverwood Lake State Recreation Area	SB
	Tatavium CP	LA
	Tomo-Kahni Project	LA
	Topanga State Beach and State Park	LA

California Department of Parks and Recreation (continued)	Udell Gorge Nature Preserve	LA
	Verdugo Mountains	LA
	Watts Towers of Simon Rodia State Historic Park	LA
	Will Rogers State Beach	LA
	Will Rogers State Historic Park	LA
California Department of Fish and Game	Bolsa Chica Ecological Preserve	LA
	Upper Newport Bay Ecological Reserve	LA
	Imperial State Wildlife Area	IMP
Los Angeles County	Placerita Canyon Park	LA
Orange County	Capistrano Bay Regional Park District	OR
	Cypress Regional Park District	OR
	Laguna Niguel Community Service District	OR
	Rossmoor Community Service District	OR
	Silverado-Modjeska Regional Park District	OR
Riverside County	Beaumont-Cherry Valley Regional Park District	RIV
	Coachella Valley Regional Park District	RIV
	Jurupa Area Regional Park District	RIV
	Moreno Valley Community Service District	RIV
	Ortega Trail Regional Park District	RIV

7.5 WATER RESOURCES TABLES

Table 3.12-2: Water Balance Summary for SCAG's Hydrologic Regions

	1998 (wet year)	*2000 (average year)*	*2001 (dry year)*
South Coast Hydrologic Region[1]			
Water Entering			
Precipitation	20,873	7,522	not available
Inflow from the Colorado River	1,081	**1,296**	not available
Imports	1,134	1,593	not available
Total	**23,088**		not available
Water Leaving			
Consumptive Use	1,517	1,877	not available
Exports to other regions	-	-	not available
Outflow to the ocean	1,969	2,029	not available
Natural and other outflows (evapotranspiration, evaporation, groundwater subsurface outflows, incidental runoff, etc.)	20,577	11,690	not available
Total	**24,063**	**11,690**	**not available**
Storage Changes			
Change in surface water storage	372	128	not available
Change in groundwater storage (not including natural recharge)	-1347	-1407	not available
Total	**-975**	**-1279**	not available
Applied Water[2]	4,216	5,076	not available
Colorado River Hydrologic Region[3]			
Water Entering			
Precipitation	9,455	3,034	not available
Inflow from the Colorado River	3,905	4,053	not available
Inflow from Mexico	182	166	not available
Imports from other regions	156	101	not available
Total	**13,698**	**7,354**	**not available**
Water Leaving			
Consumptive Use	2,739	2,818	not available
Additional outflow to salt sink	937	1,018	not available
Natural and other outflows (evapotranspiration, evaporation, groundwater subsurface outflows, incidental runoff, etc.)	10,118	3,677	not available
Total	**13,794**	**7,513**	**not available**
Storage Changes			
Change in surface water storage	-15	-19	not available
Change in groundwater storage (not including natural recharge)	-81	-140	not available
Total	**-96**	**-159**	**not available**
Applied Water[2]	4,009	4,229	not available

Table 3.12-2 (continued)			
Central Coast Hydrologic Region[4]			
Water Entering			
Precipitation	25,202	12,596	11,848
Imports from other regions	97	144	55
Total	**25,290**	**12,740**	**11,903**
Water Leaving			
Consumptive Use	682	799	not available
Exports to other regions	14	14	not available
Outflow to the ocean	269	209	not available
Natural and other outflows (evapotranspiration, evaporation, groundwater subsurface outflows, incidental runoff, etc.)	24,883	12,465	not available
Total	**24,571**	**13,487**	**12,780**
Storage Changes			
Change in surface water storage	401	8	-14
Change in groundwater storage (not including natural recharge)	-638	-755	-863
Total	**-237**	**-747**	**-877**
Applied Water[2]	1,101	1,289	not available
South Lahontan Hydrologic Region[5]			
Water Entering			
Precipitation	20,409	7,476	9,741
Imports from other regions	73	108	not available
Total	**20,482**	**7,584**	**not available**
Water Leaving			
Consumptive Use	294	342	not available
Outflow to salt sink	80	67	not available
Natural and other outflows (evapotranspiration, evaporation, groundwater subsurface outflows, incidental runoff, etc.)	20,203	7,370	not available
Total	**20,673**	**7,887**	**not available**
Storage Changes			
Change in surace water storage	72	-8	-1
Change in groundwater storage (not including natural recharge)	-263	-295	not available
Total	**-191**	**-303**	**not available**
Applied Water[2]	520	610	**not available**

Source: California Department of Water Resources. (2003). DRAFT California Water Plan Update 2003. Sacramento, CA.

[1]Includes Orange County, most of San Diego and Los Angeles counties, parts of Riverside, San Bernardino, Ventura, Kern and Santa Barbara counties.

[2]Applied water is greater than consumptive use because it includes consumptive use, re-use and outflows.

[3]Includes all of Imperial County, most of Riverside County, and parts of San Bernardino and San Diego counties.

[4]Includes part of Ventura County. The remainder is outside of the SCAG region.

7.6 CULTURAL RESOURCES DATA

CONTACT INFORMATION FOR CULTURAL RESOURCES DATA

Federal Agencies

U.S. Government Printing Office
Arco Plaza C- Level
505 S. Flower Street
Los Angeles, CA 90071
Phone: (213) 238-9844
Fax: (213) 238-9448

United States Geological Survey
General information:
Phone: 1-888-ASK-USGS
http://www.usgs.gov/
Geology Information: http://geology.usgs.gov/index.shtml
National Mapping Information: http://mapping.usgs.gov/

Earth Science Information Center
345 Middlefield Road, MS 532
Menlo Park, CA 94025-3591
Phone: (650) 329-4309
Fax: (650) 329-5130
http://ask.usgs.gov/

State Agencies

State Office of Historic Preservation
Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001
Phone: (916) 653-6624
FAX: (916) 653-9824
http://www.ohp.parks.ca.gov/

California Geological Survey
801 K Street, MS 12-30
Sacramento, CA 95814
Phone: (916) 445-1825
Fax: (916) 445-5718
http://www.consrv.ca.gov/cgs/index.htm

California Historical Resources Information System

Ms. Margaret Lopez, Coordinator
South Central Coastal Information Center (for information on Los Angeles, Orange, Ventura Counties)
California State University, Fullerton
Department of Anthropology
800 North State College Blvd.
P.O. Box 6846
Fullerton, CA 92834-6846
Phone: (714) 278-5395
Fax: (714) 278-5542
E-mail: sccic@fullerton.edu
Website: http://anthro.fullerton.edu/sccic.html

Ms. Robin Laska, Acting Coordinator
San Bernardino Archaeological Center
San Bernardino County Museum
2024 Orange Tree Land
Redlands, CA 92374
Phone: (909) 307-2669 X 255
Fax: rlaska@sbcm.co.san-bernardino.ca.us

Mr. Jay von Werlhof, Coordinator
Southeast Information Center
Imperial Valley College Museum
P.O. box 430
Ocotillo, CA 92259
Attn: Karen Collins
Phone: (760) 358-7016
Fax: (760) 358-7827
E-mail: ivcdm@imperial.cc.ca.us

Dr. M.C. Hall, Coordinator
Eastern Information Center
Department of Anthropology
University of California-Riverside
Riverside, CA 92521-0418
Attn: Kathy White
Phone: (909) 787-5745
Fax: (909) 787-5409
E-mail: eickw@ucrac1.ucr.edu

Local Agencies

City of Los Angeles Cultural Heritage Affairs Commission
433 S Spring Street, 10th Floor
Los Angeles, CA.
Phone: (213) 485-6793

County of Orange
Harbors, Beaches, and Parks Department
P.O. Box 4048
Santa Ana, CA 92702-4048
Phone: (714) 834-3724

Ralph B. Clark Regional Paleontological Park
8800 Rosecrans Avenue
Fullerton, CA 92633
Phone: (714) 670-8045

Avocational Groups

Pacific Coast Archaeological Society (PCAS)
P.O. Box 10926
Costa Mesa, CA 92627

Archaeological Survey Association (ASA)
San Bernardino County Museum
2024 Orange Tree Lane
Redlands, CA 92374

Table 7.6: Sites in the SCAG Region Listed on the National Register of Historic Places		
Site Name	**General Location**	**County**
500 Varas Square--Government Reserve	Los Angeles	Los Angeles
A. K. Smiley Public Library	Redlands	San Bernardino
Adamson House	Malibu	Los Angeles
Administration Building, Sherman Institute	Riverside	Riverside
Adobe Flores	South Pasadena	Los Angeles
Aiken's Wash National Register District	Baker	San Bernardino
Ainsworth, Lewis, House	Orange	Orange
Al Malaikah Temple	Los Angeles	Los Angeles
Alexander Theatre	Glendale	Los Angeles
All Souls Universalist Church	Riverside	Riverside
Alvarado Terrace Historic District	Los Angeles	Los Angeles
American Trona Corporation Building	Los Angeles	Los Angeles
Anacapa Island Archeological District	Port Hueneme	Ventura
Anacapa Island Light Station	Oxnard	Ventura
Andreas Canyon	Palm Springs	Riverside
Angels Flight Railway	Los Angeles	Los Angeles
Angelus Mesa Branch	Los Angeles	Los Angeles
Angelus Temple	Los Angeles	Los Angeles
Antelope Valley Indian Museum	Lancaster	Los Angeles
Archeological Site CA SBR 3186	Silver Lake	San Bernardino
Archeological Site No. D-4	Needles	San Bernardino
Archeological Site No. E-21	Parker	San Bernardino
Arlington Branch Library and Fire Hall	Riverside	Riverside
Armory Hall	Lake Elsinore	Riverside
Artz Building	Tustin	Orange
Atchison, Topeka and Santa Fe Railway Passenger and Freight Depot	San Bernardino	San Bernardino
Atchison, Topeka, and Santa Fe Railroad Station	Claremont	Los Angeles
Atchison, Topeka, and Santa Fe Railway Steam Locomotive No. 3751	Los Angeles	Los Angeles
Auditorium	Torrance	Los Angeles
Aztec Hotel	Monrovia	Los Angeles
Azusa Civic Center	Azusa	Los Angeles
Backs, Ferdinand, House	Anaheim	Orange
Bailey, Jonathan, House	Whittier	Los Angeles
Balboa Inn	Newport Beach	Orange
Balboa Pavilion	Balboa	Orange
Baldwin Hills Village	Los Angeles	Los Angeles
Bank of Balboa--Bank of America	Newport Beach	Orange
Banning House	Wilmington	Los Angeles
Bard, Elizabeth, Memorial Hospital	Ventura	Ventura
Bardsdale Methodist Episcopal Church	Fillmore	Ventura
Barker Dam	Twentynine Palms	Riverside
Barnsdall Park	Los Angeles	Los Angeles
Barton Villa	Redlands	San Bernardino
Batchelder House	Pasadena	Los Angeles
Battery John Barlow and Saxton	San Pedro	Los Angeles
Battery Osgood-Farley	San Pedro	Los Angeles
Bekins Storage Co. Roof Sign	Pasadena	Los Angeles

Table 7.6: Sites in the SCAG Region Listed on the National Register of Historic Places		
Site Name	**General Location**	**County**
Bentz, Louise C., House	Pasadena	Los Angeles
Bernard, Susana Machado, House and Barn	Los Angeles	Los Angeles
Berylwood	Port Hueneme	Ventura
Beverly Wilshire Hotel	Beverly Hills	Los Angeles
Bitter Spring Archaeological Site (4-SBr-2659)	Barstow	San Bernardino
Bixby--Bryant Ranch House	Yorba Linda	Orange
Black Canyon--Inscription Canyon--Black Mountain Rock Art District	Hinkley	San Bernardino
Blacker, Robert R., House	Pasadena	Los Angeles
Blackwater Well	Red Mountains	San Bernardino
Blinn, Edmund, House	Pasadena	Los Angeles
Blythe Intaglios	Blythe	Riverside
Bolton Hall	Tujunga	Los Angeles
Bolton, Dr. W. T., House	Pasadena	Los Angeles
Bonnie Court	Pasadena	Los Angeles
Bowen Court	Pasadena	Los Angeles
Bradbury Building	Los Angeles	Los Angeles
Bradford, A. S., House	Placentia	Orange
Brea City Hall and Park	Brea	Orange
Britt, Eugene W., House	Los Angeles	Los Angeles
Broadway Theater and Commercial District	Los Angeles	Los Angeles
Bryan Court	Pasadena	Los Angeles
Bryson Apartment Hotel	Los Angeles	Los Angeles
Builders Exchange Building	Santa Ana	Orange
Bullock's Pasadena	Pasadena	Los Angeles
Bullock's Wilshire Building	Los Angeles	Los Angeles
Bunche, Ralph J., House	Los Angeles	Los Angeles
Burro Flats Painted Cave	Santa Susana	Ventura
Buttercup Farms Pictograph	Perris	Riverside
CA SBr 1008A, CA SBr 1008B, CA SBr 1008C	Johannesburg	San Bernardino
Cahuenga Branch	Los Angeles	Los Angeles
Calico Mountains Archeological District	Yermo	San Bernardino
Calleguas Creek Site	Oxnard	Ventura
Carnegie Library	Anaheim	Orange
Carnegie Public Library Building	Colton	San Bernardino
Carnegie, Andrew, Library	Corona	Riverside
Carroll Avenue, 1300 Block	Los Angeles	Los Angeles
Casa de Esperanza	San Juan Capistrano	Orange
Casa de Parley Johnson	Downey	Los Angeles
Casa Romantica	San Clemente	Orange
Catholic-Protestant Chapels, Veterans Administration Center	Los Angeles	Los Angeles
Cedar Avenue Complex	Lancaster	Los Angeles
Centinela Adobe	Los Angeles	Los Angeles
Chapman Building	Fullerton	Orange
Charmont Apartments	Santa Monica	Los Angeles
Childs, William, House	Riverside	Riverside

Table 7.6: Sites in the SCAG Region Listed on the National Register of Historic Places		
Site Name	**General Location**	**County**
Chinatown	Riverside	Riverside
Christ College Site	Irvine	Orange
Christmas Tree Lane	Altadena	Los Angeles
Citizens Publishing Company Building	Culver City	Los Angeles
City Hall--City of Burbank	Burbank	Los Angeles
Civic Center Financial District	Pasadena	Los Angeles
Clark, Dr. George C., House	Fullerton	Orange
Clark, Mary Andrews, Memorial Home	Los Angeles	Los Angeles
Clarke Estate	Santa Fe Springs	Los Angeles
Club Casa Del Mar	Santa Monica	Los Angeles
Coachella Valley Fish Traps	Valerie	Riverside
Colonial Court	Pasadena	Los Angeles
Colonial House	West Hollywood	Los Angeles
Colony House	Simi	Ventura
Colorado Street Bridge	Pasadena	Los Angeles
Congdon, Joel R., House	San Juan Capistrano	Orange
Congregation B'nai B'rith	Los Angeles	Los Angeles
Congregation Talmud Torah of Los Angeles	Los Angeles	Los Angeles
Cooper Arms	Long Beach	Los Angeles
Corn Springs	Desert Center	Riverside
Cottage Court	Pasadena	Los Angeles
Bungalow Courts of Pasadena	Pasadena	Los Angeles
Bungalow Courts at 1274--1282 North Raymond Avenue	Pasadena	Los Angeles
Bungalow Courts at 275 North Chester Avenue	Pasadena	Los Angeles
Bungalow Courts at 533--549 North Lincoln Avenue	Pasadena	Los Angeles
Bungalow Courts at 638--650 North Mar Vista Avenue	Pasadena	Los Angeles
Bungalow Courts at 940--948 North Raymond Avenue	Pasadena	Los Angeles
Cow Camp	Twentynine Palms	San Bernardino
Crank House	Altadena	Los Angeles
Crescent Bathhouse	Lake Elsinore	Riverside
Crossroads of the World	Hollywood	Los Angeles
Crowder Canyon Archeological District	San Bernardino	San Bernardino
Crystal Cove Historic District	Laguna Beach	Orange
Culbertson, Cordelia A., House	Pasadena	Los Angeles
Culver Hotel	Culver City	Los Angeles
Culver, C. Z., House	Orange	Orange
Cypress Court	Pasadena	Los Angeles
Dana, Richard Henry, Branch	Los Angeles	Los Angeles
De Neve, Felipe, Branch	Los Angeles	Los Angeles
Derby, James Daniel, House	Glendale	Los Angeles
Desert Queen Mine	Twentynine Palms	Riverside
Desert View Tower	Ocotillo	Imperial
DeWenter Mansion, Guest House and Grounds	La Verne	Los Angeles
Diamond Apartments	Redondo Beach	Los Angeles
Doheny Estate/Greystone	Beverly Hills	Los Angeles

Table 7.6: Sites in the SCAG Region Listed on the National Register of Historic Places		
Site Name	**General Location**	**County**
Dominguez Ranch Adobe	Compton	Los Angeles
Don Carlos Court	Pasadena	Los Angeles
Downtown Santa Ana Historic Districts	Santa Ana	Orange
Drum Barracks	Wilmington	Los Angeles
Dudley House	Ventura	Ventura
Eagle Rock Branch Library	Los Angeles	Los Angeles
Easley, Oscar, Block	San Clemente	Orange
Ebell Club of Santa Paula	Santa Paula	Ventura
Ebell of Los Angeles	Los Angeles	Los Angeles
Ebell Society of Santa Ana Valley	Santa Ana	Orange
Edison Historic District	Pomona	Los Angeles
El Garces	Needles	San Bernardino
El Greco Apartment	Los Angeles	Los Angeles
El Molino Viejo	Pasadena	Los Angeles
Elephant Packing House	Fullerton	Orange
Engine Co. No. 27	Los Angeles	Los Angeles
Engine Company No. 28	Los Angeles	Los Angeles
Engine House No. 18	Los Angeles	Los Angeles
Ennis House	Los Angeles	Los Angeles
Episcopal Church of the Ascension	Sierra Madre	Los Angeles
Esslinger Building	San Juan Capistrano	Orange
Estudillo Mansion	San Jacinto	Riverside
Euclid Court	Pasadena	Los Angeles
Evanston Inn	Pasadena	Los Angeles
Exposition Park Rose Garden	Los Angeles	Los Angeles
Fages-De Anza Trail-Southern Emigrant Road	Borrego Springs	Imperial
Fairview Indian Site	Costa Mesa	Orange
Farmers and Merchants Bank of Fullerton	Fullerton	Orange
Farnsworth, Gen. Charles S., County Park	Altadena	Los Angeles
Faulkner, George Washington, House	Santa Paula	Ventura
Federal Post Office	Riverside	Riverside
Federal Reserve Bank of San Francisco	Los Angeles	Los Angeles
Fenyes Estate	Pasadena	Los Angeles
Feraud General Merchandise Store	Ventura	Ventura
Fern Avenue School	Torrance	Los Angeles
Fire Station No. 23	Los Angeles	Los Angeles
First Baptist Church of Orange	Orange	Orange
First Church of Christ, Scientist	Riverside	Riverside
First Congregational Church of Riverside	Riverside	Riverside
First National Bank of Long Beach	Long Beach	Los Angeles
First Trust Building and Garage	Pasadena	Los Angeles
Fontana Farms Company Ranch House, Camp No. 1	Fontana	San Bernardino
Fontana Pit and Groove Petroglyph Site	Fontana	San Bernardino
Foothill Boulevard Milestone (Mile 11)	Pasadena	Los Angeles
Forster, Frank A., House	San Juan Capistrano	Orange

Table 7.6: Sites in the SCAG Region Listed on the National Register of Historic Places		
Site Name	**General Location**	**County**
Foxtrot Petroglyph Site	Twentynine Palms	San Bernardino
Frances Packing House	Irvine	Orange
Frankish Building	Ontario	San Bernardino
Franz, Emmanuel, House	Ventura	Ventura
Freeman, Samuel, House	Los Angeles	Los Angeles
Fremont, John C., Branch	Los Angeles	Los Angeles
French Park Historic District	Santa Ana	Orange
Friday Morning Club	Los Angeles	Los Angeles
Friendship Baptist Church	Pasadena	Los Angeles
Fullerton First Methodist Episcopal Church	Fullerton	Orange
Fullerton Odd Fellows Temple	Fullerton	Orange
Fullerton Union Pacific Depot	Fullerton	Orange
Gamble House	Pasadena	Los Angeles
Gano, Peter, House	Avalon	Los Angeles
Garbani, Rocco, Homestead	Winchester	Riverside
Garbutt House	Los Angeles	Los Angeles
Garfield Building	Los Angeles	Los Angeles
Garfield House	South Pasadena	Los Angeles
Gartz Court	Pasadena	Los Angeles
Gilman Ranch	Banning	Riverside
Glen Tavern Hotel	Santa Paula	Ventura
Glendale Southern Pacific Railroad Depot	Glendale	Los Angeles
Glendale Young Men's Christian Association	Glendale	Los Angeles
Glendora Bougainvillea	Glendora	Los Angeles
Goffs Schoolhouse	Goffs	San Bernardino
Golden Gate Theater	Los Angeles	Los Angeles
Golden State Mutual Life Insurance Building	Los Angeles	Los Angeles
Granada Shoppes and Studios	Los Angeles	Los Angeles
Grand Union Hotel	Newbury Park	Ventura
Grandma Prisbrey's Bottle Village	Simi Valley	Ventura
Greenwood, Barbara, Kindergarten	Pomona	Los Angeles
Greystone Villa--Cabin 18	Cleveland National Forest	Orange
Guaranty Building	Hollywood	Los Angeles
Hacienda Arms Apartments	West Hollywood	Los Angeles
Hale House	Los Angeles	Los Angeles
Hale Solar Laboratory	Pasadena	Los Angeles
Halifax Apartments	Los Angeles	Los Angeles
Hangar One	Los Angeles	Los Angeles
Harada House	Riverside	Riverside
Harmon-McNeil House	Santa Ana	Orange
Harnetiaux Court	Pasadena	Los Angeles
Harrison House	San Juan Capistrano	Orange
Harvey House Railroad Depot	Barstow	San Bernardino
Haskett Court	Pasadena	Los Angeles
Hawkins--Nimocks Estate-Patricio Ontiveros Adobe	Santa Fe Springs	Los Angeles

Table 7.6: Sites in the SCAG Region Listed on the National Register of Historic Places		
Site Name	**General Location**	**County**
Heinsbergen Decorating Company Building	Los Angeles	Los Angeles
Helme--Worthy Store and Residence	Huntington Beach	Orange
Heritage House	Riverside	Riverside
Hermitage	Pasadena	Los Angeles
Hetebrink House	Fullerton	Orange
Highland Historic District	Highland	San Bernardino
Highland Park Masonic Temple	Los Angeles	Los Angeles
Highland Park Police Station	Los Angeles	Los Angeles
Highland--Camrose Bungalow Village	Los Angeles	Los Angeles
Hofer Ranch	Ontario	San Bernardino
Holly Street Livery Stable	Pasadena	Los Angeles
Hollywood Boulevard Commercial and Entertainment District	Los Angeles	Los Angeles
Hollywood Cemetery	Los Angeles	Los Angeles
Hollywood Masonic Temple	Hollywood	Los Angeles
Hollywood Melrose Hotel	Los Angeles	Los Angeles
Hollywood Studio Club	Hollywood	Los Angeles
Home Economics Building	Torrance	Los Angeles
Home Laundry	Pasadena	Los Angeles
Hoover Hotel	Whittier	Los Angeles
Horatio West Court	Santa Monica	Los Angeles
Hotel Glendale	Glendale	Los Angeles
Hotel Green	Pasadena	Los Angeles
Hotel San Clemente	San Clemente	Orange
House at 1011 S. Madison Ave.	Pasadena	Los Angeles
House at 1050 S. Madison Ave.	Pasadena	Los Angeles
House at 1233 Wentworth Ave.	Pasadena	Los Angeles
House at 380 W. Del Mar Blvd.	Pasadena	Los Angeles
House at 530 S. Marengo Avenue	Pasadena	Los Angeles
House at 574 Bellefontaine St.	Pasadena	Los Angeles
Howard Motor Company Building	Pasadena	Los Angeles
Howe-Waffle House and Carriage House	Santa Ana	Orange
Hubble, Edwin, House	San Marino	Los Angeles
Hughes Flying Boat (Hercules)	Long Beach	Los Angeles
Humaliwo	Malibu	Los Angeles
Huntington Beach Elementary School Gymnasium and Plunge	Huntington Beach	Orange
Huntington Beach Municipal Pier	Huntington Beach	Orange
Irvine Bean and Growers Association Building	Irvine	Orange
Irvine Blacksmith Shop	Irvine	Orange
Irvine Park	Orange	Orange
Irving, Washington, Branch	Los Angeles	Los Angeles
Jackson, Helen Hunt, Branch	Los Angeles	Los Angeles
Jardinette Apartments	Los Angeles	Los Angeles
Jefferson Branch	Los Angeles	Los Angeles
Jensen, Cornelius, Ranch	Rubidoux	Riverside
Johnston, Darius David, House	Norwalk	Los Angeles

Table 7.6: Sites in the SCAG Region Listed on the National Register of Historic Places		
Site Name	**General Location**	**County**
Jordan, Orin, House	Whittier	Los Angeles
Judson Studios	Los Angeles	Los Angeles
Kelso Depot, Restaurant and Employees Hotel	Kelso	San Bernardino
Key, George, Ranch	Placentia	Orange
Keyes Bungalow	Altadena	Los Angeles
Keys Desert Queen Ranch	Twentynine Palms	San Bernardino
Kimberly Crest	Redlands	San Bernardino
Kindel Building	Pasadena	Los Angeles
Kosy Knook Court	Pasadena	Los Angeles
Kraemer, Samuel, Building (American Savings Bank/First National Bank)	Anaheim	Orange
Kress, George R., House	Los Angeles	Los Angeles
Kroger-Melrose District	Anaheim	Orange
La Belle Tour	Hollywood	Los Angeles
La Casa Alvarado	Pomona	Los Angeles
La Casa Primera de Rancho San Jose	Pomona	Los Angeles
La Puente Valley Woman's Club	La Puente	Los Angeles
Lake Norconian Club	Norco	Riverside
Lane Victory	San Pedro	Los Angeles
Lanterman House	La Canada Flintridge	Los Angeles
Las Casitas Court	Pasadena	Los Angeles
Leonis Adobe	Calabasas	Los Angeles
Lighter-than-Air Ship Hangars	Santa Ana	Orange
Lincoln Heights Branch	Los Angeles	Los Angeles
Lincoln, Abraham, Elementary School	Pomona	Los Angeles
Little Tokyo Historic District	Los Angeles	Los Angeles
Lloyd, Harold, Estate	Beverly Hills	Los Angeles
Longfellow-Hastings House	Pasadena	Los Angeles
Longley, Howard, House	South Pasadena	Los Angeles
Lopez Adobe	San Fernando	Los Angeles
Los Altos Apartments	Los Angeles	Los Angeles
Los Angeles Central Library	Los Angeles	Los Angeles
Los Angeles Harbor Light Station	Los Angeles	Los Angeles
Los Angeles Memorial Coliseum	Los Angeles	Los Angeles
Los Angeles Nurses' Club	Los Angeles	Los Angeles
Los Angeles Pacific Company Ivy Park Substation	Los Angeles	Los Angeles
Los Angeles Plaza Historic District	Los Angeles	Los Angeles
Los Angeles Union Passenger Terminal	Los Angeles	Los Angeles
Los Cerritos Ranch House	Long Beach	Los Angeles
Los Rios Street Historic District	San Juan Capistrano	Orange
Lovell Beach House	Newport Beach	Orange
Lovell House	Los Angeles	Los Angeles
Lukens, Theodore Parker, House	Pasadena	Los Angeles
Lummis House	Los Angeles	Los Angeles
Lynwood Pacific Electric Railway Depot	Lynwood	Los Angeles
Machell--Seaman House	Los Angeles	Los Angeles

Table 7.6: Sites in the SCAG Region Listed on the National Register of Historic Places		
Site Name	**General Location**	**County**
Main Building	Torrance	Los Angeles
Malabar Branch	Los Angeles	Los Angeles
March Field Historic District	Riverside	Riverside
Marengo Gardens	Pasadena	Los Angeles
Mariona	Laguna Beach	Orange
Martinez Canyon Rockhouse	North Palm Springs	Riverside
Martinez Historical District	Torres-Martinez Indian Reservation	Riverside
Mary Louise Court	Pasadena	Los Angeles
Masonic Temple	Riverside	Riverside
Masonic Temple	Fullerton	Orange
McCarty Memorial Christian Church	Los Angeles	Los Angeles
McCoy Spring Archeological Site	Blythe	Riverside
McCrea, Joel, Ranch	Thousand Oaks	Ventura
McNally's Windemere Ranch Headquarters	La Mirada	Los Angeles
Melrose-Backs Neighborhood Houses	Anaheim	Orange
Memorial Branch	Los Angeles	Los Angeles
Menlo Avenue--West Twenty-ninth Street Historic District	Los Angeles	Los Angeles
Mentor Court	Pasadena	Los Angeles
Merrill, Samuel, House	Pasadena	Los Angeles
Mill Creek Zanja	Redlands	San Bernardino
Millard House	Pasadena	Los Angeles
Miller and Herriott House	Los Angeles	Los Angeles
Million Dollar Theater	Los Angeles	Los Angeles
Miltimore House	South Pasadena	Los Angeles
Minter, George W., House	Santa Ana	Orange
Miss Orton's Classical School for Girls (Dormitory)	Pasadena	Los Angeles
Mission Court	Pasadena	Los Angeles
Mission Court Bungalows	Riverside	Riverside
Mission Inn	Riverside	Riverside
Mission San Buenaventura and Mission Compound Site	San Buenaventura	Ventura
Mission San Fernando Rey de Convento Building	Los Angeles	Los Angeles
Mission San Juan Capistrano	San Juan Capistrano	Orange
Modjeska House	Modjeska	Orange
Moneta Branch	Los Angeles	Los Angeles
Montanez Adobe	San Juan Capistrano	Orange
Montebello Woman's Club	Montebello	Los Angeles
Montecito Apartments	Los Angeles	Los Angeles
Mooers, Frederick Mitchell, House	Los Angeles	Los Angeles
Mount Lowe Railway	Altadena	Los Angeles
Mount Pleasant House	Los Angeles	Los Angeles
Moyse Building	Chino	San Bernardino
Muckenthaler House	Fullerton	Orange
Muir, John, Branch	Los Angeles	Los Angeles
Municipal Warehouse No. 1	San Pedro	Los Angeles

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Site Name	**General Location**	**County**
Murrieta Creek Archeological Area	Temecula	Riverside
National Bank of Whittier Building	Whittier	Los Angeles
Natural History Museum	Los Angeles	Los Angeles
Newberry Cave Site	Newberry Springs	San Bernardino
Newcomb House	Pasadena	Los Angeles
Newland House	Huntington Beach	Orange
Nicholson, Grace, Building	Pasadena	Los Angeles
Nixon, Richard, Birthplace	Yorba Linda	Orange
North Chuckwalla Mountain Quarry District	Desert Center	Riverside
North Chuckwalla Mountains Petroglyph District Ca-Riv 1383	Desert Center	Riverside
North Harper Avenue Historic District	West Hollywood	Los Angeles
North Hollywood Branch	Los Angeles	Los Angeles
Oaklawn Bridge and Waiting Station	South Pasadena	Los Angeles
Oaks, The	Monrovia	Los Angeles
Odd Fellows Hall	Santa Ana	Orange
Odd Fellows Temple	Pasadena	Los Angeles
Old Backs House	Anaheim	Orange
Old Pasadena Historic District	Pasadena	Los Angeles
Old San Antonio Hospital	Upland	San Bernardino
Old Santa Susana Stage Road	Chatsworth	Los Angeles
Old Towne Orange Historic District	Orange	Orange
Old YWCA Building	Riverside	Riverside
Olivas Adobe	Ventura	Ventura
Olive Civic Center	Orange	Orange
Ontario State Bank Block	Ontario	San Bernardino
Orange County Courthouse	Santa Ana	Orange
Orange Grove Court	Pasadena	Los Angeles
Orange Heights--Barnhart Tracts Historic District	Pasadena	Los Angeles
Orange Intermediate School--Central Grammar School	Orange	Orange
Orange Union High School	Orange	Orange
Oviatt, James, Building	Los Angeles	Los Angeles
Oxnard Public Library	Oxnard	Ventura
Oxnard, Henry T., Historic District	Oxnard	Ventura
Pacific Electric Railroad Bridge	Torrance	Los Angeles
Pacific Electric Railway Company Depot	Yorba Linda	Orange
Pacific Electric Railway Company Substation No. 8	Altadena	Los Angeles
Pacific Electric Sub-Station No. 14	Santa Ana	Orange
Paddison Ranch Buildings	Norwalk	Los Angeles
Padua Hills Theatre	Claremont	Los Angeles
Palmer, Minnie Hill, House	Chatsworth	Los Angeles
Palmetto Court	Pasadena	Los Angeles
Palomares, Ygnacio, Adobe	Pomona	Los Angeles
Palos Verdes Public Library and Art Gallery	Palos Verdes Estates	Los Angeles
Parker House	Orange	Orange
Parkhurst Building	Santa Monica	Los Angeles

Table 7.6: Sites in the SCAG Region Listed on the National Register of Historic Places		
Site Name	**General Location**	**County**
Parra, Miguel, Adobe	San Juan Capistrano	Orange
Pasadena Civic Center District	Pasadena	Los Angeles
Pasadena Playhouse	Pasadena	Los Angeles
Pasadena Playhouse Historic District	Pasadena	Los Angeles
Patio del Moro	West Hollywood	Los Angeles
Pegler, John Carlton, House	Sierra Madre	Los Angeles
Pellissier Building	Los Angeles	Los Angeles
Perris Depot	Perris	Riverside
Phillips Mansion	Pomona	Los Angeles
Pickwick Hotel	Anaheim	Orange
Pico, Pio, Casa	Whittier	Los Angeles
Pico, Romulo, Adobe	Mission Hills	Los Angeles
Pierotti, Attlio and Jane, House	Fullerton	Orange
Pioneer Deep Space Station	Fort Irwin	San Bernardino
Pitzer House	Claremont	Los Angeles
Piute Pass Archeological District	Needles	San Bernardino
Plaza Historic District	Orange	Orange
Plaza Substation	Los Angeles	Los Angeles
Plaza, The	Orange	Orange
Plummer, Louis, Auditorium	Fullerton	Orange
Point Fermin Lighthouse	San Pedro	Los Angeles
Point Vicente Light	Long Beach	Los Angeles
Pomona Fox Theater	Pomona	Los Angeles
Pomona YMCA Building	Pomona	Los Angeles
Portal of the Folded Wings Shrine to Aviation and Museum	North Hollywood	Los Angeles
Porter--French House	Orange	Orange
Pratt, Charles M., House	Ojai	Ventura
Prospect Historic District	Pasadena	Los Angeles
Puvunga Indian Village Sites	Long Beach	Los Angeles
Queen Anne Cottage and Coach Barn	Arcadia	Los Angeles
Rains, John, House	Cucamonga	San Bernardino
Ralph J. Scott	San Pedro	Los Angeles
Ralphs Grocery Store	Los Angeles	Los Angeles
Ramsay--Durfee Estate	Los Angeles	Los Angeles
Rancho Camulos	Piru	Ventura
Rancho El Encino	Encino	Los Angeles
Rancho Los Alamitos	Long Beach	Los Angeles
Rankin Building	Santa Ana	Orange
Redlands Central Railway Company Car Barn	Redlands	San Bernardino
Redlands Santa Fe Depot District	Redlands	San Bernardino
Redondo Beach Original Townsite Historic District	Redondo Beach	Los Angeles
Redondo Beach Public Library	Redondo Beach	Los Angeles
Reeve, Jennie A., House	Long Beach	Los Angeles
Rialto Theatre	South Pasadena	Los Angeles
Ridge Route, Old	Castaic	Los Angeles

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Site Name	**General Location**	**County**
Rindge, Frederick Hastings, House	Los Angeles	Los Angeles
Riverside Municipal Auditorium and Soldier's Memorial Building	Riverside	Riverside
Riverside-Arlington Heights Fruit Exchange	Riverside	Riverside
Rives, James C., House	Downey	Los Angeles
RMS Queen Mary	Long Beach	Los Angeles
Robinson, Virginia, Estate	Beverly Hills	Los Angeles
Rodman Mountains Petroglyphs Archeological District	Barstow	San Bernardino
Rogers, Will, House	Los Angeles	Los Angeles
Ronda	West Hollywood	Los Angeles
Rose Bowl, The	Pasadena	Los Angeles
Rose Court	Pasadena	Los Angeles
Rowland, John A., House	Industry	Los Angeles
Russian Village District	Montclair	San Bernardino
Russian Village District	Claremont	Los Angeles
Ryan House and Lost Horse Well	Twentynine Palms	Riverside
S.S. Catalina	San Pedro	Los Angeles
Saddle Rock Ranch Pictograph Site	Malibu	Los Angeles
San Bernardino County Court House	San Bernardino	San Bernardino
San Buenaventura Mission Aqueduct	Ventura	Ventura
San Clemente Beach Club	San Clemente	Orange
San Dimas Hotel	San Dimas	Los Angeles
San Fernando Building, The	Los Angeles	Los Angeles
San Gabriel Mission	San Gabriel	Los Angeles
San Miguel Chapel Site	Ventura	Ventura
San Pedro Municipal Ferry Building	San Pedro	Los Angeles
San Pedro, Los Angeles; Salt Lake RR Depot	Riverside	Riverside
San Rafael Rancho	Glendale	Los Angeles
San Timoteo Canyon Schoolhouse	Redlands	Riverside
Santa Ana City Hall	Santa Ana	Orange
Santa Ana Fire Station Headquarters No. 1	Santa Ana	Orange
Santa Fe Railway Passenger and Freight Depot	Fullerton	Orange
Santa Monica Looff Hippodrome	Santa Monica	Los Angeles
Santa Paula Hardware Company Block--Union Oil Company	Santa Paula	Ventura
Santora Building	Santa Ana	Orange
Sara-Thel Court	Pasadena	Los Angeles
Schindler, R. M., House	West Hollywood	Los Angeles
Scripps College for Women	Claremont	Los Angeles
Scripps Hall	Altadena	Los Angeles
Seal Beach City Hall	Seal Beach	Orange
Second Church of Christ, Scientist	Los Angeles	Los Angeles
Security Trust and Savings	Hollywood	Los Angeles
Serrano, Jose, Adobe	El Toro	Orange
Simi Adobe-Strathearn House	Simi	Ventura
Simon's, M. H., Undertaking Chapel	Riverside	Riverside
Sinclair, Upton, House	Monrovia	Los Angeles

Table 7.6: Sites in the SCAG Region Listed on the National Register of Historic Places		
Site Name	**General Location**	**County**
Singer Building	Pasadena	Los Angeles
Smiley Park Historic District	Redlands	San Bernardino
Smith and Clark Brothers Ranch and Grounds	Villa Park	Orange
Smith Estate	Los Angeles	Los Angeles
Smith, Ernest W., House	Pasadena	Los Angeles
Smith-Tuthill Funeral Parlors	Santa Ana	Orange
Somerville Hotel	Los Angeles	Los Angeles
South Bonnie Brae Tract Historic District	Los Angeles	Los Angeles
South Marengo Historic District	Pasadena	Los Angeles
South Pasadena Historic District	South Pasadena	Los Angeles
South Serrano Avenue Historic District	Los Angeles	Los Angeles
Southern Counties Gas Co.	Santa Ana	Orange
Southern Hotel	Perris	Riverside
Southern Pacific Railroad Station	Whittier	Los Angeles
Southwest Lake Cahuilla Recessional Shoreline Archeological District	Salton City	Imperial
Sovereign Hotel	Santa Monica	Los Angeles
Sowden, John, House	Los Angeles	Los Angeles
Space Flight Operations Facility	Pasadena	Los Angeles
Spring Street Financial District	Los Angeles	Los Angeles
Spring Street Financial District (Boundary Increase	Los Angeles	Los Angeles
Spurgeon Block	Santa Ana	Orange
Squaw Spring Archeological District	Red Mountain	San Bernardino
SS Winfield Scott (Steamship)	Anacapa Island	Ventura
St. Andrews Bungalow Court	Los Angeles	Los Angeles
St. Francis by-the-Sea American Catholic Church	Laguna Beach	Orange
St. James Park Historic District	Los Angeles	Los Angeles
St. John's Episcopal Church	Los Angeles	Los Angeles
St. John's Lutheran Church	Orange	Orange
St. Thomas Aquinas Chapel	Ojai	Ventura
Standard Oil Building	Whittier	Los Angeles
Stanton, Phillip Ackley, House	Anaheim	Orange
Stevens, Sherman, House	Tustin	Orange
Stevenson, Robert Louis, Branch	Los Angeles	Los Angeles
Stimson House	Los Angeles	Los Angeles
Stonehead (L-7)	Yuma	Imperial
Storer House	Los Angeles	Los Angeles
Stoutenburgh House	Pasadena	Los Angeles
Straight, Charles E., House	La Verne	Los Angeles
Streetcar Depot	Los Angeles	Los Angeles
Stuart Company Plant and Office Building	Pasadena	Los Angeles
Sunset Towers	West Hollywood	Los Angeles
Sutherland Fruit Company	Riverside	Riverside
Sweetser Residence	Redondo Beach	Los Angeles
Tahquitz Canyon	Palm Springs	Riverside
Temple Mansion	Industry	Los Angeles

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Site Name	**General Location**	**County**
Title Guarantee and Trust Company Building	Los Angeles	Los Angeles
Toberman, C. E., Estate	Hollywood	Los Angeles
Topock Maze Archeological Site	Needles	San Bernardino
Torrance School	Torrance	Los Angeles
Town House, The	Los Angeles	Los Angeles
Truxaw-Gervais House	Anaheim	Orange
Tuna Club of Avalon	Avalon	Los Angeles
Twentieth Street Historic District	Los Angeles	Los Angeles
Twenty-Five Foot Space Simulator	Pasadena	Los Angeles
University Heights Junior High School	Riverside	Riverside
Upland Public Library	Upland	San Bernardino
US Inspection Station--Calexico	Calexico	Imperial
US Post Office Station--Spurgeon Station	Santa Ana	Orange
US Post Office--Beverly Hills Main	Beverly Hills	Los Angeles
US Post Office--Burbank Downtown Station	Burbank	Los Angeles
US Post Office--Downtown Station	San Bernardino	San Bernardino
US Post Office--El Centro Main	El Centro	Imperial
US Post Office--Glendale Main	Glendale	Los Angeles
US Post Office--Hollywood Station	Los Angeles	Los Angeles
US Post Office--Long Beach Main	Long Beach	Los Angeles
US Post Office--Los Angeles Terminal Annex	Los Angeles	Los Angeles
US Post Office--Redlands Main	Redlands	San Bernardino
US Post Office--San Pedro Main	San Pedro	Los Angeles
Van Buren Place Historic District	Los Angeles	Los Angeles
Van Nuys Branch	Los Angeles	Los Angeles
Vasquez Rocks	Agua Dulce	Los Angeles
Venice Branch	Los Angeles	Los Angeles
Venice Canal Historic District	Los Angeles	Los Angeles
Venice of America House	Los Angeles	Los Angeles
Ventura County Courthouse	Ventura	Ventura
Ventura Theatre	Ventura	Ventura
Vermont Square Branch	Los Angeles	Los Angeles
Victoria Avenue	Riverside	Riverside
Villa Bonita	Hollywood	Los Angeles
Villa Francesca	Rancho Palos Verdes	Los Angeles
Villa Riviera	Long Beach	Los Angeles
Villa Verde	Pasadena	Los Angeles
Virginia (sloop)	Dana Point	Orange
Vista del Arroyo Hotel and Bungalows	Pasadena	Los Angeles
Walkers Orange County Theater	Santa Ana	Orange
Wall Street Mill	Twentynine Palms	San Bernardino
Warner Brothers Theatre	San Pedro	Los Angeles
Washington Building	Culver City	Los Angeles
Washington Court	Pasadena	Los Angeles
Washington, Henry, Survey Marker	Big Bear City	San Bernardino

Table 7.6: Sites in the SCAG Region Listed on the National Register of Historic Places		
Site Name	**General Location**	**County**
Watts Station	Los Angeles	Los Angeles
Watts Towers of Simon Rodia	Los Angeles	Los Angeles
Weaver, Henry, House	Santa Monica	Los Angeles
Well No. 4, Pico Canyon Oil Field	San Fernando	Los Angeles
Whitley Heights Historic District	Hollywood	Los Angeles
Willmore, The	Long Beach	Los Angeles
Wilmington Branch	Los Angeles	Los Angeles
Wilshire Branch	Los Angeles	Los Angeles
Wilson, Warren, Beach House	Venice	Los Angeles
Wilton Historic District	Los Angeles	Los Angeles
Winterhaven Anthropomorph (L-8)	Yuma	Imperial
Winterhaven Anthropomorph and Bowknot, L-9	Winterhaven	Imperial
Woman's Club of Redondo Beach	Redondo Beach	Los Angeles
Woman's Improvement Club Clubhouse	Corona	Riverside
Women's Improvement Club of Hueneme	Port Hueneme	Ventura
Woodbury--Story House	Altedena	Los Angeles
Workman Adobe	Industry	Los Angeles
Workman Family Cemetery	Industry	Los Angeles
Wright, George L., House	Santa Ana	Orange
Wright, Lloyd, Home and Studio	West Hollywood	Los Angeles
Wrigley, William, Jr., Summer Cottage	Avalon	Los Angeles
Wynyate	South Pasadena	Los Angeles
Yorba, Domingo Adobe and Casa Manuel Garcia	San Juan Capistrano	Orange
Yorba-Slaughter Adobe	Chino	San Bernardino
Yost Theater--Ritz Hotel	Santa Ana	Orange
Young Men's Christian Association--Santa Ana-Tustin Chapter	Santa Ana	Orange
Yuha Basin Discontiguous District	Plaster City	Imperial
Yuma Crossing and Associated Sites	Winterhaven	Imperial
Ziegler Estate	Los Angeles	Los Angeles
Source: National Register of Historic Places. (2003). National register information system [Database]. Retrieved February 11, 2003, from http://www.nr.nps.gov/		