3.11 PUBLIC SERVICES AND UTILITIES

This section describes the current public services and utilities in the SCAG region, discusses the potential impacts of the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategies (2012-2035 RTP/SCS or Plan) on public services and utilities, identifies mitigation measures for the impacts, and evaluates the residual impacts.

In general, the impacts of the proposed project on public services are evaluated based on the adequacy of existing and planned facilities and personnel to meet any anticipated additional demand generated by the project.

POLICE, FIRE AND EMERGENCY SERVICES

REGULATORY FRAMEWORK

Federal

There are no federal police, fire and emergency services regulations applicable to the proposed project.

State

California Fire Code. Title 24, Part 9 of the California Code of Regulations (CCR) is the California Fire Code. Title 24, Part 9 of the CCR sets forth regulations regarding building standards, fire protection and notification systems, fire protection devices such as fire extinguishers and smoke alarms, high-rise building standards, and fire suppression training. The 2007 California Fire Code is the incorporation of the 2006 International Fire Code of the International Code Council with necessary California amendments. Development under the proposed project would be subject to applicable regulations of the California Fire Code.

Mutual Aid Agreements (MAA). Immediately following the 1994 Northridge earthquake, city and county emergency managers in the Office of Emergency Services (OES) coastal, southern, and inland regions developed a coordinated emergency management concept called the Emergency Managers Mutual Aid (EMMA) system. EMMA provided a valuable service in the emergency response and recovery efforts at the Southern Regional Emergency Operations Center (REOC), local Emergency Operations Centers (EOCs), the Disaster Field Office (DFO), and community service centers.

The purpose of EMMA is to support disaster operations in affected jurisdictions by providing professional emergency management personnel. In accordance with the Master Mutual Aid Agreement, local and state emergency managers have responded in support of each other under a variety of plans and procedures.

The objectives of the EMMA Plan include:

- Providing emergency management personnel from unaffected areas to support local jurisdictions, Operational Areas, and regional emergency operations during proclaimed emergencies;
- Providing a system, including an organization, information, and forms necessary to coordinate the formal request, reception, assignment, and training of assigned personnel;
- Establishing a structure to maintain this document (the Emergency Managers Mutual Aid Plan) and its procedures;

- Providing for the coordination of training for emergency managers, including Standardized Emergency Management System (SEMS/NIMS) training, emergency management course work, exercises, and disaster response procedures; and
- Promoting professionalism in emergency management.[1]

Local

County Offices of Emergency Services. Counties and cities are generally the first responders to any security or emergency situation. These responders include fire departments, police and sheriff department, hospitals, ambulance services and transportation agencies. Coordination among public and private agencies within various cities and counties make the most use of all available resources in the event of any emergency.

While each city and county has their own security procedures, the policies are generally similar. Mutual Aid agreements between cities, counties and private organizations help to maximize resources and reduce the human suffering associated with disaster situations. Each SCAG county has a department in charge of security and emergency response (**Table 3.11-1**).

TABLE 3.11-1: COUNTY OFFICES OF EMERGENCY SERVICES

County	Office Information	County	Office Information
Imperial	Office of Emergency Services 1078 Dogwood Road Heber, CA 92249 (760) 482-2400	Riverside	Office of Emergency Services 4080 Lemon Street, Suite 8 P.O. Box 1412 Riverside, CA 925021412 (951) 955-4700
Los Angeles	Office of Emergency Management 1275 N. Eastern Ave. Los Angeles, CA 90063 (323) 980-2261	San Bernardino	Office of Emergency Services 1743 W. Miro Way Rialto, CA 92376 (909) 356-3998
Orange	Office of Emergency Services 2644 Santiago Canyon Road Silverado, CA 92676 (714) 628-7055	Ventura	Ventura County Office of Emergency Services 800 South Victoria Ave. Ventura, CA 93009 (805) 654-2551

SOURCE: TAHA, 2011.

General Plan. The State of California requires every county and city to adopt a General Plan, which must contain a Safety Element. However, CCR Section 65302(g) specifically provides that a city may adopt the county's safety element if the county's element "is sufficiently detailed containing appropriate policies and programs for adoption by a city." The Safety Element must include methods to reduce the potential risk of fires, floods, earthquakes, landslides, and other hazards. Other locally relevant safety issues, such as emergency response, hazardous materials spills, and crime reduction, may also be included. Some local jurisdictions have also incorporated their hazardous waste management plans into their safety elements. In addition, the safety element may be used to establish programs and policies that promote neighborhood, institutional, governmental, and business safety. The safety element must identify and map urban fringe and rural-residential areas that are prone to wildfires, adequate evacuation routes and peakload water supplies to reduce fire hazards. The policies of the safety element form the basis of adopted fire safe ordinances and strategic fire defense system zoning.

[1] http://www.oes.ca.gov/Operational/OESHome.nsf/PDF/Emergency Managers Mutual Aid Plan/$file/Emma.pdf.

EXISTING SETTING

Fire Protection Services

Fire protection within the SCAG region includes a variety of federal, state, county, city, and other local fire protection agencies. As with police services, primary fire protection services occur at the community level, with city and county fire departments and fire protection districts providing this service. Also serving as fire protection services are a variety of volunteer fire companies. In addition, there are fire protection agencies that provide fire protection services within state and federal lands. These agencies include, but are not limited to, federal fire agencies (Bureau of Land Management, National Park Service, National Forest Service, Department of Defense, etc.), state forestry department, tribal fire departments, airport and harbor fire departments, and in some instances business sponsored fire departments (i.e., refineries, etc.). Each agency provides fire services within their own area of responsibilities, but they can call upon other agencies for fire support through mutual aid agreements. Generally, fire departments take proactive and preventative measures to provide fire suppression and emergency response services for all private, institutional, and public facilities within their area of responsibility. **Table 3.11-2** shows the breakdown of fire prevention agencies at the county and city levels. County service is for both unincorporated areas, cities that contract with the county for fire protection service, and independent fire protection districts.

TABLE 3.11-2: FIRE PROTECTION SERVICE PROVIDERS FOR JURISDICTIONS WITHIN SCAG COUNTIES

	Jurisdiction Served By		
County	**County Fire Department**	**City Fire Department**	**Fire Protection Districts or Other Independent Fire Agencies**
Imperial	2	6	4
Los Angeles	59	30	1
Orange	23	11	1
Riverside	19	8	5
San Bernardino	7	13	15
Ventura	7	4	--

Notes:
1. Numbers do not include various Federal, State, and specialty fire departments, such as Bureau of Land Management, National Park Service, Department of Defense, California Forestry Department (wild lands), private or public airport fire departments, business fire departments (i.e., refineries, Indian Tribal lands, etc.) that might aid county, city, and independent fire departments through mutual aid agreements, and vice versa.
2. Includes cities and unincorporated county areas served by county fire departments/authority.
3. Some districts service City and adjoining unincorporated areas.
4. Five Cities (Apple Valley, Barstow, Chino, Chino Hills, 29 Palms) served by independent fire protection districts.
5. City of La Habra served by LA County Fire Department.

SOURCE: http://www.imperialcounty.net/EmergencyPlans/MultiHazardMitigationPlan.pdf August 10, 2011; Los Angeles County Fire Department, Retrieved August 10, 2011 from http://www.fire.lacounty.gov/SpecialOps/SpecOps911Dispatch.asp; Orange County Fire Authority, http://www.ocfa.org/_uploads/pdf/ ocfiredepts.pdf, accessed August 15, 2011; Riverside County Fire Department, http://www.rvcfire.org/opencms/ ContractCities/, accessed August 15, 2011. San Bernardino County Fire Department, http://www.sbcfire.org/default.aspx, accessed August 15, 2011; City of San Bernardino Fire Department, http://sbcity.org/cityhall/fire/sbfd_facts.asp, accessed August 15, 2011; Ventura County Fire Department http://fire.countyofventura.org/AboutVCFD/tabid/60/Default.aspx, accessed August 15, 2011.

Police Protection Services

Law enforcement within the SCAG region takes into account a variety of federal, State, county, city, and other local law enforcement agencies. Primary law enforcement is at the community level, with City Police and Sheriff's Departments providing this service. Additionally, there are more specialized law enforcement agencies that assist in law enforcement at the community or resource level in the SCAG region. These specialized agencies include, but are not limited to State Highway Patrol, School Police, Airport and Harbor Police, Transit Police, Tribal Police, Park Rangers (federal, State, county, and city), and a wide variety of Federal Agencies (FBI, ATF, etc.). Each agency has their own responsibilities, some of which may overlap with other law enforcement agencies. State Park Rangers may call upon Sheriff's Deputies for assistance.

Transit Police might call upon City Police to aid them. In general, law enforcement agencies provide first response to all emergencies, perform preliminary investigations, and provide basic patrol services in their service area. **Table 3.11-3** shows the breakdown of law enforcement agencies at the county and city level. County service is for both unincorporated areas and cities that contract with the county for law enforcement services.

TABLE 3.11-3: POLICE SERVICE PROVIDERS FOR JURISDICTIONS WITHIN SCAG COUNTIES

	Jurisdiction Served By	
County	**County Sheriff's Department**	**City Police Department**
Imperial	1	7
Los Angeles	40	49
Orange	13	21
Riverside	10	11
San Bernardino	14	10
Ventura	6	5

Notes:
1. Includes Cities and Unincorporated County Areas served by County Sheriff's Departments.
2. Includes Cities that contract with other Cities for Police Services (i.e., Yorba Linda with Brea, Santa Fe Springs with Whittier, etc.).
3. Does not include specialty police agencies such as School Districts, Airports, Ports, etc.
SOURCE: Los Angeles County Sheriff's Department, http://www.lasd.org/lasd_services/contract_law/contract_cities.html , accessed August 15, 2011; Orange County Sheriff's Department, http://egov.ocgov.com/ocgov/Sheriff-Coroner%20-%20Sandra%20Hutchens, accessed August 15, 2011; Riverside County Sheriff's Department, http://www.riversidesheriff.org/stations/; San Bernardino Sheriff's Department, http://www.co.san-bernardino.ca.us/sheriff/patrol/Patrol.asp, August 15, 2011; Ventura County Sheriff's Department, http://www.vcsd.org/overview.php, accessed August 15, 2011.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of CEQA and as appropriate for the 2012-2035 RTP/SCS, the Plan would have a significant impact related to police, fire and emergency services if it would:

- Create a substantial need within the region for construction of additional public facilities, such as fire and police stations.

Methodology

The following summarizes the methodology used to evaluate the expected impacts of implementation of the Plan on existing police, fire and emergency services, and associated environmental effects.

Cumulative Analysis

The 2012-2035 RTP/SCS addresses transportation projects and land use distribution patterns, including land use scenarios. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the 2012-2035 RTP/SCS, this Plan would influence growth, including distribution patterns, throughout the region. To address this, the analysis in the PEIR covers overall impacts of all transportation projects and land development described in the 2012-2035 RTP/SCS. In addition, this PEIR considers cumulative impacts from other regional plans (e.g., the South Coast Air Quality Management Plan), which could result in additional impacts inside and outside the region.

Comparison with the No Project Alternative

The analysis of police, fire and emergency services and facilities includes a comparison between the expected future conditions with the Plan and the expected future conditions if no Plan were adopted (No Project). This evaluation is not included in the determination of the significance of impacts (which is based on a comparison to existing conditions); however it provides a meaningful perspective on the effects of the 2012-2035 RTP/SCS.

Determination of Significance

The public services analysis evaluates the police, fire and emergency services that are most likely to be affected by the implementation of the projects, programs, and policies identified in the Plan. Impacts to police, fire and emergency services were evaluated with SCAG data related to projected population, housing, and employment growth and available data on existing public services and utilities within the six-county region. The methodology for determining the significance of these impacts applies the significance criteria above to the expected future (2035) demand for police, fire and emergency services and compares future demand with the 2012-2035 RTP/SCS to the existing capacity for public services.

Both short-term construction related impacts and long-term or permanent impacts from new facilities would potentially result from implementation of the Plan. Implementation of the 2012-2035 RTP/SCS will affect public services and utilities. Expected significant cumulative impacts include demand for more police, fire, and emergency personnel and facilities. The following analysis identifies foreseeable impacts from new transportation projects proposed in the 2012-2035 RTP/SCS. Indirect, cumulative impacts from implementation of the proposed 2012-2035 RTP/SCS, in combination with increases in growth and development, are also identified. Project-specific impacts vary and appropriate mitigation measures would need to be developed on a project-by-project basis as appropriate.

IMPACTS

Impact 3.11-1: Potential to affect the level of transportation-related public services, such as police and fire/emergency personnel in the SCAG region.

Police, fire and emergency services within the SCAG region are provided by numerous agencies within multiple jurisdictions (**Tables 3.11-2** and **3.11-3**). 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, 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 are potentially significant. As part of project-specific environmental review, local agencies 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. Traffic control plans 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 fire, police, and emergency services at the construction sites of 2012-2035 RTP/SCS projects and at development sites in general for security and safety purposes. However, many construction sites are secured and have security onsite. The impact of individual construction sites on fire, police, and emergency services is anticipated to be short-term in nature however, given the large volume of projects and anticipated development construction would be on-going throughout

the lifetime of the RTP and would contribute to increased delays region-wide. In general the Plan would increase delay in the region by about 33 percent impacting response times of fire, police and emergency services.

There are several types of projects included within the 2012-2035 RTP/SCS that, upon completion, would require different levels of fire, police, and emergency services. Additional fire and police personnel would be needed to adequately respond to emergencies and routine calls, particularly on new or expanded transportation facilities. New light rail transit (LRT) routes/extensions in Los Angeles and San Bernardino Counties, as well as other transit-related projects, would involve the construction of transit stations. These transit stations, upon completion, would require fire, police, and emergency services. In some cases, such as with Metro, the governing transit authority provides security.

Increased use of transit would involve an increased need for fire, police, and emergency services for protection and rescue services. 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. Anticipated development would result in additional needs for police, fire and emergency services usually in direct proportion to population increase.

The 2012-2035 RTP/SCS anticipates a land use pattern where more than half of the new growth would be in urban areas, in particular in High Quality Transit Areas (HQTAs). As these urban areas increase in population, additional police, fire and emergency services would be required. The improvements to, and increased use of, non-motorized transportation methods such as bicycle routes and associated facilities, are anticipated to require minimal amounts of additional fire, police, and emergency services for security and safety.

Throughout the SCAG region, emergency service providers have historically accommodated increases in demand (with increased staff and facilities funded through general funds of each jurisdiction). New or expanded transportation facilities may increase the demand for emergency personnel and facilities potentially without increasing funding, resulting in a significant impact related to police, fire and emergency services. Increased development would increase demand for fire, police and emergency services; frequently tax revenues associated with development pays for increased services. Nonetheless tax revenue is not always sufficient and therefore impacts would remain significant. Implementation of Mitigation Measures **MM-PS1, MM-PS2 and MM-PS11** would reduce fire, police, and emergency services impacts; however, impacts would remain significant.

Impact 3.11-2: Potential to result in exposure to wildfires and hazards as new or expanded infrastructure is constructed within areas susceptible to these threats, resulting in an increased need for police, fire and emergency personnel.

As mentioned above, new or expanded transportation facilities may require additional fire, police, and emergency services as projects to close gaps in the highway network provide new sources of access to all parts of the SCAG region. Wildfires have been and will continue to be imminent threats to large portions of the SCAG region, as indicated in **Map 3.11-1**, located in Chapter 8.0. New 2012-2035 RTP/SCS infrastructure may be developed within areas susceptible to these hazards, thereby increasing the demand on fire and emergency services. In addition, climate change studies suggest that Southern California will continue to experience more extreme weather scenarios, including longer and hotter heat waves. These conditions would increase the threat of wildfire in parts of the SCAG region already prone to wildfires. According to current land use trends, it is anticipated that by 2035, 83,990 households would be located in areas prone to wildfire threat. However, the 2012-2035 RTP/SCS's compact growth pattern would focus growth in urban areas less likely to be threatened by wildfires. Under the Plan, it is expected that by 2035, the number of households located in areas prone to wildfires would be reduced to 71,553. Nonetheless, given the anticipated demand for fire, police, and emergency services from proposed 2012-2035 RTP/SCS

projects as well as increased development in general, and the current capacities of fire, police, and emergency services, an increased demand on these services is anticipated as a result of wildfire threat. Implementation of Mitigation Measures **MM-PS3** through **MM-PS10**, would reduce wildfire impacts; however, impacts would remain significant.

Cumulative Impact 3.11-3: Potential to contribute to regional cumulatively considerable impacts to the staffing level and response times of police, fire and emergency services in southern California.

In general impacts to police, fire and emergency services would be confined to the region and would result from transportation projects and anticipated growth. The increase in homes subject to wildfire threat could mean, that in the event of a major fire (such as the Station Fire in 2009), more homes would be in peril requiring more inter-agency assistance than might be needed under the Plan.

MITIGATION MEASURES

Mitigation Measures **MM-PS1** through **MM-PS6** can and should be implemented by project sponsors (for both development and transportation projects) as applicable. Project specific environmental documents may adjust these mitigation measures as necessary to respond to site-specific conditions. Projects taking advantage of CEQA Streamlining provisions of SB 375 can and should apply mitigation measures as appropriate to site-specific conditions. Mitigation Measures **MM-PS7** through **MM-PS10** shall be implemented by SCAG and local jurisdictions can and should implement Mitigation Measures **MM-PS7** through **MM-PS11** over the lifetime of the 2012-2035 RTP/SCS.

MM-PS1: Project implementation agencies can and should ensure that prior to construction all necessary local and state road and railroad encroachment permits are obtained. The project implementation agency can and should also comply with all applicable conditions of approval. As deemed necessary by the governing jurisdiction, the road encroachment permits may require the contractor to prepare a traffic control plan in accordance with professional engineering standards prior to construction. Traffic control plans can and should include the following requirements:

- Identification of all roadway locations where special construction techniques (e.g., directional drilling or night construction) would be used to minimize impacts to traffic flow.
- Development of circulation and detour plans to minimize impacts to local street circulation. This may include the use of signing and flagging to guide vehicles through and/or around the construction zone.
- Scheduling of truck trips outside of peak morning and evening commute hours.
- Limiting of lane closures during peak hours to the extent possible.
- Usage of haul routes minimizing truck traffic on local roadways to the extent possible.
- Inclusion of detours for bicycles and pedestrians in all areas potentially affected by project construction.
- Installation of traffic control devices as specified in the California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work Zones.
- Development and implementation of access plans for highly sensitive land uses such as police and fire stations, transit stations, hospitals, and schools. The access plans would be developed with the facility owner or administrator. To minimize disruption of emergency vehicle access, affected jurisdictions can and should be asked to identify detours for emergency vehicles, which will then be posted by the contractor. Notify in advance the facility owner or operator of the timing, location, and duration of construction activities and the locations of detours and lane closures.
- Storage of construction materials only in designated areas.

- Coordination with local transit agencies for temporary relocation of routes or bus stops in work zones, as necessary.

MM-PS2: Project sponsors can and should identify projects in the 2012-2035 RTP/SCS that require police protection, fire service, and emergency medical service and can and should coordinate with local fire and police departments to ensure that the existing public services 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 can and should be identified in each project's CEQA documentation.

MM-PS3: Project sponsors can and should ensure that during project construction, all construction vehicles and equipment will be fitted with spark arrestors to minimize accidental ignition of dry construction debris and surrounding dry vegetation.

MM-PS4: Project sponsors can and should encourage the use of fire-resistant vegetation native to Southern California and/or to the local microclimate (e.g., vegetation that has high moisture content, low growth habits, ignition-resistant foliage, or evergreen growth), eliminate brush and chaparral, and discourage the use of fire-promoting species especially non-native, invasive species (e.g., pampas grass, fennel, mustard, or the giant reed) in the immediate vicinity of development in areas with high fire threat.

MM-PS5: Project sponsors can and should encourage natural re-vegetation or seeding with local, native species after a fire and discourage re-seeding of non-native, invasive species to promote healthy, natural ecosystem re-growth. Native vegetation is more likely to have deep root systems that prevent slope failure and erosion of burned areas than shallow-rooted non-natives.

MM-PS6: Project sponsors can and should submit a fire safety plan (including phasing) to the Lead Agency and local fire agency for their review and approval. The fire safety plan can and should include all of the fire safety features incorporated into the project and the schedule for implementation of the features. The local fire protection agency may require changes to the plan or may reject the plan if it does not adequately address fire hazards associated with the project as a whole or the individual phase.

MM-PS7: SCAG shall and local jurisdictions can and should discourage development on potentially hazardous developments in hillsides, canyons, areas with steep slopes or that are susceptible to flooding, earthquakes, wildfire and other known hazards, and areas with limited access for emergency equipment.

MM-PS8: SCAG shall and local jurisdictions can and should promote Fire-wise Land Management: by encouraging 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-PS9: SCAG shall and local jurisdictions can and should shall promote Fire Management Planning that help reduce fire threats in the region as part of the Compass Blueprint process and other ongoing regional planning efforts.

MM-PS10: SCAG shall and local jurisdictions can and should encourage the use of fire-resistant materials when constructing projects in areas with high fire threat.

MM-PS11: The growth inducing potential of individual RTP projects shall be carefully evaluated so that the full implications of the projects 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. Lead and responsible agencies can and should then make any necessary adjustments to the applicable General Plan. Any such identified adjustment shall be communicated to SCAG.

SIGNIFICANCE OF IMPACTS AFTER MITIGATION

Police, Fire and Emergency Services

Impacts to police, fire and emergency services in the SCAG region would be significant without mitigation. Implementation of Mitigation Measures **MM-PS1** and **MM-PS2** would reduce these impacts; however, impacts would remain significant.

Wildfire Hazards

Impacts related to wildfire hazards would be reduced with the implementation of Mitigation Measures **MM-PS3** through **MM-PS10**. However, wildfires and seismic events are, and will continue to be imminent threats to large portions of the SCAG region, regardless of any available preventative measures. Therefore, this impact would remain significant.

Cumulative Impacts

Implementation of Mitigation Measure **MM-PS11** would reduce growth-related increased demand for police, fire, and emergency services in the SCAG region. However, impacts to fire services would remain potentially significant.

COMPARISION WITH THE NO PROJECT ALTERNATIVE

Under the No Project Alternative, the population of the SCAG region would grow by 3.9 million people (the same as for the Plan); however no regional transportation investments would be made above the existing programmed projects. The population distribution could follow past trends, substantially uninfluenced by additional transportation investments.

Direct Impacts

There would be increased congestion under the No Project Alternative because of fewer transportation improvements and a more dispersed growth pattern. Therefore, the No Project Alternative would result in emergency vehicle response times that are worse than under the Plan. On average delay in the region would increase by 83 percent from 2011 under the No Project Alternative as compared to an increase of about 33 percent with the Plan. Under the No Project Alternative, new growth would be spread over about 474,880 acres of vacant, open space/recreational and agricultural lands compared to about 213,760 under the Plan. Thus greater extension of fire and police protection and emergency services would be needed under the No Project Alternative.

As mentioned above, under the No Project Alternative, it is anticipated that 83,990 households would be exposed to extreme wildfire threats; whereas under the 2012-2035 RTP/SCS, the number would be reduced to 71,553. This would be a 14 percent decrease in households exposed to extreme wildfire threats, as

measures to reduce wildfire threats are implemented with planned 2012-2035 RTP/SCS projects. **The No Project Alternative would result in impacts that would be greater than the Plan for Impact 3.11-1 and 3.11-2.**

Cumulative Impacts

In general impacts to police, fire and emergency services would be confined to the region and would result from transportation projects and anticipated growth. The increase in homes subject to wildfire threat could mean, that in the event of a major fire (such as the Station Fire in 2009), more homes would be in peril requiring more inter-agency assistance than might be needed under the Plan. **The No Project impacts would be greater than the Plan impacts for Impact 3.11-3.**

EDUCATIONAL FACILITIES

REGULATORY FRAMEWORK

Federal

There are no federal public school regulations applicable to the proposed project.

State

California Government Code Section 65995. California Government Code Section 65995 is found in Title 7, Chapter 4.9 of the California Government Code. California Government Code Section 65995 authorizes school districts to collect impact fees from developers of new residential and commercial/industrial building space. Senate Bill 50 (SB 50) amended Government Code Section 65995 in 1998. Under the provisions of SB 50 schools can collect fees to offset costs associated with increasing school capacity as a result of development. The development associated with the proposed project would be subject to applicable fees determined by the local school districts per California Government Code Section 65995. The local school districts determine fees in accordance with California Government Code Section 65995 which can be adjusted every two years.

California Education Code. School facilities and services are subject to the rules and regulations of the California Education Code and governance of the State Board of Education (SBE). The SBE is the 11-member governing and policy making body of the California Department of Education (CDE) that sets K-12 education policy in the areas of standards, instructional materials, assessment, and accountability. The CDE and the State Superintendent of Public Instruction are responsible for enforcing education law and regulations; and for continuing to reform and improve public elementary school, secondary school, and child care programs, as well as adult education and some preschool programs. The CDE's mission is to provide leadership, assistance, oversight, and resources so that every Californian has access to an education that meets world-class standards.[2] The core purpose of the CDE is to lead and support the continuous improvement of student achievement, with a specific focus on closing achievement gaps.[3]

[2]California Department of Education, Role and Responsibilities, accessed online at: http://www.cde.ca.gov/ eo/mn/rr/, accessed April 5, 2010.

[3]California Department of Education, Belief and Purpose, accessed online at: http://www.cde.ca.gov/ eo/mn/mv/, accessed April 5, 2010.

Leroy F. Green School Facilities Act of 1998 (Senate Bill (SB) 50). The Leroy F. Greene School Facilities Act of 1998, Senate Bill (SB) 50, was signed into law on August 27, 1998. It placed a $9.2 billion State bond measure (Proposition 1A), which included grants for modernization of existing schools and construction of new schools, on ballot at the November 3, 1998 election. Under SB 50, a program for funding school facilities largely based on matching funds was created. Its construction grant provides funding on a 50/50 State and local match basis, while its modernization grant provides funding on a 60/40 basis. Districts that are unable to provide some, or all, of the local match requirement and area able to meet the financial hardship provisions may be eligible for additional State funding.[4] In addition, SB 50 allows governing boards of school districts to establish fees to offset costs associated with school facilities made necessary by new construction. Pursuant to Government Code Section 65995, the payment of these fees by a developer serves to fully mitigate all potential project impacts on school facilities from implementation of a project to less than significant levels.

Local

School Districts. Although the California public school system is under the policy direction of the Legislature, the California Department of Education relies on local control for the management of school districts. In allocating resources among the schools of the district, school district governing boards and district administrators must follow the law, but also set the educational priorities for their schools. As of the 2008-2009 school year, there were more than 1,000 school districts in California.

EXISTING SETTING

Educational Facilities

There are approximately 3.1 million students enrolled in schools in the SCAG region, ranging from kindergarten to twelfth grade, with approximately 143,000 teachers. **Table 3.11-4** lists the public school student and teacher totals by county. **Table 3.11-5** shows the number of school districts along with both public and private schools in the SCAG region by county.

TABLE 3.11-4: KINDERGARTEN THROUGH GRADE 12 ENROLLMENT AND TEACHERS IN THE SCAG REGION FOR THE 2011-2011 SCHOOL YEAR

County	Enrollment K-12	Teachers
Imperial	36,435	1,570
Los Angeles	1,589,543	79,494
Orange	502,903	20,266
Riverside	425,334	16,762
San Bernardino	417,214	18,870
Ventura	141,610	6,180
SCAG Region	3,113,039	143,142
California	6,217,113	291,594

SOURCE: California Department of Education, Educational Demographics Unit. (August, 2011). Enrollment in California public schools by county 2010-2011 [Data Query] and Number of teachers in California public schools by ethnicity by county 2010-11 [Data Query], accessed August 10, 2011 from the California Department of Education Web site, http://dq.cde.ca.gov/dataquest/.

[4] State of California, Office of Public School Construction, School Facility Program Handbook, February 2006.

TABLE 3.11-5: PUBLIC AND PRIVATE SCHOOLS IN THE SCAG REGION

	Public Schools						Private Schools	
	K-12		Community College					
County	Districts	Schools	Districts	Schools	UC System	Cal State System	K-12	College
Imperial	17	66	1	1	--	--	8	--
Los Angeles	88	2,167	13	22	1	5	975	41
Orange	28	620	4	9	1	1	283	9
Riverside	25	491	4	6	1	--	136	2
San Bernardino	34	559	5	6	--	1	153	2
Ventura	21	224	1	3	--	1	82	3
Total	**213**	**4,127**	**28**	**47**	**3**	**8**	**1,637**	**57**

SOURCE: California Department of Education, DataQuest, http://dq.cde.ca.gov/dataquest/content.asp, accessed August 11, 2011.
The California State University, *Campus Home Pages*, http://www.calstate.edu/datastore/campus_map.pdf, accessed August 11, 2011.
The California State University website, http://www.universityofcalifornia.edu/campuses/welcome.html, accessed August 11, 2011.
California Department of Education, School Directory, http://www.cde.ca.gov/re/sd/, accessed August 11, 2011.
Western Association of Schools and Colleges, http://www.wascsenior.org/wasc/, accessed August 11, 2011.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of CEQA and as appropriate for the 2012-2035 RTP/SCS, the Plan would have a significant impact related to schools facilities if it would:

- Create a substantial need within the region for construction of additional schools.

Methodology

The following summarizes the methodology used to evaluate the expected impacts of implementation of the Plan on existing educational facilities and associated environmental effects.

Cumulative Analysis

The 2012-2035 RTP/SCS addresses transportation projects and land use distribution patterns, including land use scenarios. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the 2012-2035 RTP/SCS, this Plan would influence growth, including distribution patterns, throughout the region. To address this, the analysis in the PEIR covers overall impacts of all transportation projects and land development described in the 2012-2035 RTP/SCS. In addition, this PEIR considers cumulative impacts from other regional plans (e.g., the South Coast Air Quality Management Plan), which could result in additional impacts inside and outside the region.

Comparison with the No Project Alternative

The analysis of educational facilities includes a comparison between the expected future conditions with the Plan and the expected future conditions if no Plan were adopted (No Project). This evaluation is not included in the determination of the significance of impacts (which is based on a comparison to existing conditions); however it provides a meaningful perspective on the effects of the 2012-2035 RTP/SCS.

Determination of Significance

The following analysis evaluates educational facilities that could be affected by the implementation of the projects, programs, and policies identified in the Plan. Impacts to educational facilities 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 above to the expected future (2035) demand for educational facilities and compares future demand with the Plan to the existing capacity.

Both short-term construction related impacts and long-term or permanent impacts could result from implementation of the Plan.

The following analysis identifies direct, indirect and cumulative impacts that would occur with implementation of the Plan. There is anticipated to be wide variation in project specific impacts and mitigation measures should be developed as appropriate on a project-by-project basis.

IMPACTS

Impact 3.11-4: Potential to increase demand for school facilities.

Population in the SCAG region is anticipated to increase by approximately 3.9 million people over the next 25 years (with or without the Plan). The population of school-aged children (5-17) is anticipated to increase by approximately 453,000. The transportation investments and land use strategies in the 2012-2035 RTP/SCS target development in urbanized portions of the region, specifically near transit and other existing infrastructure. It is anticipated that this increase in school-aged children would result in a significant impact to schools in the region. Implementation of Mitigation Measure **MM-PS12** would reduce impacts to educational facilities; however, impacts would remain significant.

Cumulative Impact 3.11-5: Potential to contribute to a cumulatively considerable demand for schools that exceeds capacity.

It is not anticipated that the Plan would contribute to cumulative impacts to schools beyond the project-specific impacts identified above. It is anticipated that some changes in population could be induced outside the region as a result of the Plan, such changes would be addressed by planning efforts in those jurisdictions.

MITIGATION MEASURES

Mitigation Measure **MM-PS12** can and should be implemented by project sponsors as applicable.

MM-PS12: Project sponsors can and should undertake project-specific review of the impacts to educational facilities as part of project specific environmental review. For any identified impacts, project sponsors can and should ensure that the appropriate school district fees are paid in accordance with State law. The project sponsors or local jurisdiction can and should be responsible for ensuring adherence to required mitigation. SCAG should be provided with documentation of compliance with any necessary mitigation measures.

SIGNIFICANCE OF IMPACTS AFTER MITIGATION

Schools

Implementation of Mitigation Measure **MM-PS12** would reduce impacts related to demand for new schools and teachers. However, impacts would remain significant.

COMPARISION WITH THE NO PROJECT ALTERNATIVE

Direct Impacts

Under the No Project Alternative, the population of the SCAG region would grow by 3.9 million people; however, no regional transportation investments would be made above the existing programmed projects and the land use strategies included in the Plan would not be in place in the region. The population distribution would likely follow past trends, uninfluenced by additional transportation investments or land use strategies.

Cumulative Impacts

The No Project Alternative would result in a different distribution of demand for schools (more dispersed). It is not clear if this impact would be better or worse than under the Plan. Therefore, impacts are anticipated to be similar.

RECREATIONAL FACILITIES

See also Section 3.3 Biological Resources and Open Space.

REGULATORY FRAMEWORK

Federal

Section (4f). Section 4(f) of the U.S. Department of Transportation Act of 1966 (U.S. DOT Act) was enacted as a means of protecting publicly-owned public parks, recreation areas, and wildlife/waterfowl refuges as well as historic sites of local, state or national significance, from conversion to transportation uses.

The provision states that the Secretary of the U.S. DOT may approve a transportation project requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge, or land from an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, recreation area, refuge or site) only if:

- There is no feasible and prudent alternative to using that land, and
- The program or project includes all possible planning to minimize harm to the Section 4(f) property.

- or –

- The Section 4(f) use is de minimis.

State

Quimby Act. The Quimby Act was established by the California State Legislature in 1965 and codified as California Government Code Section 66477. The Quimby Act allows the legislative body of a city or county, by ordinance, to require the dedication of land or impose a requirement of the payment of fees in lieu thereof, or a combination of both, for park or recreational purposes as a condition to the approval of a tentative tract map or parcel map. Under the Quimby Act, requirements for parkland dedications are not to exceed three acres of parkland per 1,000 persons residing within a subdivision, and in-lieu fee payments shall not exceed the proportionate amount necessary to provide three acres of parkland, unless the amount of existing neighborhood and community parkland exceeds that limit.

California 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.

Local

General Plans. The most comprehensive land use planning, including that for recreational facilities in the SCAG region is provided by city and county general plans, which local governments are required by state law to prepare as a guide for future development. General plans contain 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. City and county zoning codes provide the set of detailed requirements that implement general plan policies at the level of the individual parcel. Zoning codes present standards for different uses and identifies which uses are allowed in the various zoning districts of the jurisdiction. Since 1971, State law has required the city or county zoning code to be consistent with the jurisdiction's general plan.

EXISTING SETTING

Community Open Space and Recreation

Community open space includes all forms of open space in or serving the needs of people in the region's communities. This category includes, but is not limited to park and recreation areas, community gardens, some private farmlands, some public rangelands, urban forests, greenbelts, and trail systems. In many communities, it also includes natural lands in the form of cores, connectors, and/or fragments.

Community open space traditionally has meant parks and other recreation areas that are located in or near enough to serve local communities. In today's region, community open space includes community gardens, dedicated natural lands, urban forests, greenbelts, trail systems, and bikeways. This new mix of community open spaces is the product of interrelated planning decisions on a local and regional level and a reflection of new and old needs of the region's communities. **Table 3.11-6** shows the acreage of recreational facilities and open space with each SCAG subregion.

TABLE 3.11-6: RECREATIONAL AREAS BY SCAG SUBREGION (ACRES)[a],[b]

SCAG Subregion	Beach Parks	Developed Local and Regional Parks	Specimen Gardens/ Arboreta	Undeveloped Local and Regional Parks	Wildlife Preserves and Sanctuaries	Other Open Space and Recreation	Total
Ventura County	220	383	1	0	1,802	626,933	**629,339**
North Los Angeles County	0	705	0	5,268	849	2,010	**8,832**
Las Virgines, Malibu	181	73	0	713	28	66	**1,060**
South Bay Cities	176	376	82	0	52	69	**755**
City of Los Angeles	229	480	0	139	432	219	**1,500**
Westside Cities	136	410	0	151	0	107	**805**
Arroyo Verdugo	0	8	144	0	0	153	**306**
Gateway Cities	240	2,086	4	691	65	164	**3,250**
San Gabriel	0	1,579	272	2,136	34	3,373	**7,395**
Orange County	682	2,201	0	57	10,678	5,387	**19,005**
Western Riverside	0	1,636	4	24,689	3,351	6,785	**36,474**
Coachella Valley	0	755	1	667,309	10,971	993	**680,029**
San Bernardino County	0	1,616	0	121,420	6	6,968	**130,010**
Imperial County	0	114	0	0	10,735	864	**11,713**
Total	**1,864**	**12,422**	**508**	**822,573**	**39,003**	**654,091**	**1,530,473**

[a] "Open" uses include open space and recreation lands, water, vacant lands in a natural state, and agriculture.
[b] Does not include national forests, state parks, and other federal/state lands that are kept in a natural state and are open to the public for recreational purposes.
Note: Acreage based on 2008 data.
SOURCE: SCAG GIS Analysis 2011; SCAG 2008 Land Use Inventory.

THRESHOLDS OF SIGNIFICANCE

In accordance with Appendix G of CEQA and as appropriate for the 2012-2035 RTP/SCS, the Plan would have a significant impact related to recreational facilities if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facilities would occur; and/or
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Methodology

This section summarizes the methodology used to evaluate the expected impacts of implementation of the Plan on existing recreational facilities and associated environmental effects.

Cumulative Analysis

The 2012-2035 RTP/SCS addresses transportation projects and land use distribution patterns, including land use scenarios. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the 2012-2035 RTP/SCS, this Plan would influence growth, including distribution patterns, throughout the region. To address this, the analysis in the PEIR covers overall impacts of all

transportation projects and land development described in the 2012-2035 RTP/SCS. In addition, this PEIR considers cumulative impacts from other regional plans (e.g., the South Coast Air Quality Management Plan), which could result in additional impacts inside and outside the region.

Comparison with the No Project Alternative

The analysis of recreational facilities includes a comparison between the expected future conditions with the Plan and the expected future conditions if no Plan were adopted (No Project). This evaluation is not included in the determination of the significance of impacts (which is based on a comparison to existing conditions); however it provides a meaningful perspective on the effects of the 2012-2035 RTP/SCS.

Determination of Significance

The following analysis evaluates recreational facilities that are most likely to be affected by the implementation of the projects, programs, and policies identified in the Plan. Impacts to these facilities 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 above to the expected future (2035) demand for recreational facilities and compares future demand with the Plan to the existing capacity.

Both short-term construction related impacts and long-term or permanent impacts could result from implementation of the Plan. Below are descriptions of the types of direct impacts foreseeable from new transportation projects and development anticipated in the 2012-2035 RTP/SCS. Indirect, and cumulative impacts from implementation of the Plan are also addressed. Project specific impacts may vary and mitigation measures should be developed on a project-by-project basis as appropriate.

IMPACTS

Impact 3.11-6: Potential to result in a substantial loss or disturbance of existing open space and recreational lands.

The 2012-2035 RTP/SCS includes projects that would require the acquisition or development of previously undisturbed/vacant land and/or designated open space potentially resulting in a significant impact.

Open spaces vary in size and location as described in the Environmental Setting and generally include public parks, recreational facilities, and areas planned for such uses. (It also includes agricultural lands and vacant land with no designated use; these uses are discussed in Section 3.8 Land Use.) Most open spaces provide critical habitat, as discussed in Section 3.3 Biological Resources. Construction of transportation facilities as well as development would impact open spaces and recreational lands (and possibly recreational facilities), through the acquisition of land and development of transportation projects and urban uses.

Transit and some roadway improvements included in the 2012-2035 RTP/SCS are generally located in urbanized areas, and therefore, are not likely to result in significant impacts to vacant/undisturbed lands or large tracts of land designated as open space. Although such projects could impact local recreational facilities such as local parks, gymnasiums, swimming pools, etc.).

To assess potential impacts to open space adjacent to transportation corridors, Geographic Information Systems (GIS) was used to analyze major highway, transit, and freight rail project in the 2012-2035 RTP/SCS. The results of the GIS analysis determined that projects included in the Plan could affect 733

acres of open space and recreational land throughout the SCAG region.[5] Urban development would impact considerably more open space. The Plan would consume 334 square miles (213,800 acres) of land not presently in urban use.

Under the 2012-2035 RTP/SCS, more than half of new growth occurring would be infill or redevelopment, with the remainder located on previously vacant/undeveloped land, open space and recreational lands, or farmland. Proposed projects that could result in significant impacts to recreational facilities include closures to gaps in the highway network through areas that currently serve as open space lands, closures to gaps in the high-occupancy vehicle (HOV) lane network and the addition of freeway-to-freeway direct HOV connectors, and a connected network of express/high-occupancy toll (HOT) lanes.

Corridor projects, in particular, would be expected to result in impacts to open spaces due to acquisition of large amounts of land for roadway widening and construction and also due to degrading existing habitat by adding transportation infrastructure to areas that previously had habitat value. Projects that would be expected to include substantial impacts to loss of open space to accommodate large increases in traffic include the High Desert Corridor in Los Angeles and San Bernardino Counties and SR-241 in Orange County. The Plan includes a policy on Acquisition of Natural Lands and Open space which may lead to reduced loss of open space over the long term.

In addition, the 2012-2035 RTP/SCS includes arterial investments, goods movement capacity enhancements, and the California High-Speed Train (HST). These projects would cause adverse effects on open space and recreation lands. Implementation of Mitigation Measures **MM-PS13** through **MM-PS20** would reduce impacts to open space and recreational facilities; however, impacts would remain significant.

Impact 3.11-7: Potential to increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial deterioration of the facilities would occur.

The 2012-2035 RTP/SCS includes transportation investments and land use strategies that would affect the pattern of development in the region. With the Plan, total population is expected to increase by approximately 3.9 million by 2035. As described above, the 2012-2035 RTP/SCS would target growth in existing urban areas. Many of the urbanized areas in the SCAG are currently deficient in park space. Although policies included in the Plan encourage additional parks and other amenities, many of the areas where population would be expected to increase would be areas without sufficient park space, resulting in increased use and deterioration of existing neighborhood and regional parks.

As discussed under **Impact 3.11-6** above, the 2012-2035 RTP/SCS also includes projects that could result in the acquisition of parks and recreational facilities, further increasing use at remaining facilities and further reducing the ratio of parks-to-people in these urban areas. Implementation of Mitigation Measures **MM-PS21** through **MM-PS34** would reduce impacts to recreational facilities; however, impacts would remain significant. The Environmental Justice section includes a substantial analysis on the access to open space for Environmental Justice communities and associated health impacts.

MITIGATION MEASURES

Mitigation Measures **MM-PS13** through **MM-PS26** can and should be implemented by project sponsors and local agencies as appropriate (for both development and transportation projects) and local jurisdictions as applicable. Project specific environmental documents may adjust these mitigation measures as necessary to respond to site-specific conditions. Projects taking advantage of CEQA Streamlining provisions of SB 375

[5]Based on SCAG Land Use data from 2008.

can and should apply mitigation measures as appropriate to site-specific conditions. Mitigation Measures **MM-PS27** through **MM-PS34** shall be implemented by SCAG over the lifetime of the 2012-2035 RTP/SCS.

MM-PS13: Project sponsors can and should ensure that projects are consistent with federal, state, and local plans that preserve open space.

MM-PS14: Project sponsors can and should 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-PS15: Project sponsors can and should 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-PS16: Prior to final approval of each project, the project sponsor can and should 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 sponsors or local jurisdiction can and should be responsible for ensuring adherence to the mitigation measures prior to construction.

MM-PS19: Local jurisdictions can and should prepare a Needs Assessment to determine the level of adequate community open space level for their areas.

MM-PS20: Local jurisdictions can and should work with SCAG to identify regionally significant open space resources within their jurisdictions as feasible and appropriate.

MM-PS21: Where practical and feasible, project sponsors and local jurisdictions can and should consider increasing the accessibility to natural areas and lands for outdoor recreation. Such measures can and should be coordinated with local and regional open space planning or management agencies.

MM-PS22: Local jurisdictions can and should encourage multiple use spaces and encourage redevelopment in areas where it will provide more opportunities for recreational uses and access to natural areas close to the urban core.

MM-PS23: Project level mitigation for significant cumulative and growth-inducing impacts on open space resources can and should include the conservation of natural lands, community open space and important farmland through existing projects in the region.

MM-PS24: Local governments can and should consider the most recent annual report on open space conservation in planning and evaluating projects and programs in areas with regionally significant open space resources.

MM-PS25: Local governments can and should encourage patterns of urban development and land use, which reduce costs on infrastructure and make better use of existing facilities. Strategies local governments can and should pursue include:

- Increase the accessibility to natural areas lands for outdoor recreation.
- Promote infill development and redevelopment to revitalize existing communities
- Utilize "green" development techniques
- Promote water-efficient land use and development.

MM-PS26: Project sponsors and local governments can and should encourage multiple use spaces and encourage redevelopment in areas where it will provide more opportunities for recreational uses and access to natural areas close to the urban core.

MM-PS27: Future impacts to open space and recreation lands shall be avoided through cooperation, information sharing, and program development as part of SCAG's ongoing regional planning efforts.

MM-PS28: SCAG shall support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.

MM-PS29: SCAG shall encourage member jurisdictions to work as partners to address regional outdoor recreation needs and to acquire the necessary funding for the implementation of their plans and programs. This should be done, in part, by consulting with agencies and organizations that have active open space work plans.

MM-PS30: SCAG shall support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.

MM-PS31: SCAG shall coordinate with local agencies facilitate planning and funding opportunities for regional open space.

MM-PS32: SCAG shall continue to work with the state to develop approaches for evaluating environmental impacts within the Compass Blueprint program, particularly energy, air quality, water, and open space and habitat.

MM-PS33: SCAG shall encourage member jurisdictions that have trails and trail segments determined to be regionally significant to work together to support regional trail networks. SCAG should encourage joint use of utility, transportation and other rights-of-way, greenbelts, and biodiversity areas

MM-PS34: SCAG shall consider consistency with ongoing regional open space planning in funding opportunities and programs administered by SCAG.

SIGNIFICANCE OF IMPACTS AFTER MITIGATION

Loss of Open Space and Recreational Lands

Implementation of Mitigation Measures **MM-PS13** through **MM-PS34** would help to reduce impacts related to loss or disturbance of open space and recreational lands; however, it is anticipated that impacts to open space and recreational lands would not be mitigated in every instance. Therefore, this impact would remain significant.

Potential to Impact Existing Recreational Facilities

Implementation of Mitigation Measures **MM-PS 21** through **MM-PS 34** would reduce impacts related to the loss or overuse of parks and recreational facilities in urbanized areas. However, as more than half of the growth that would occur in the region would be in these urbanized areas, this impact would remain significant.

COMPARISION WITH THE NO PROJECT ALTERNATIVE

In the No Project Alternative, the population of the SCAG region grows by 3.9 million people, however, no regional transportation investments would be made above the existing programmed projects. The population distribution could follow past trends, uninfluenced by additional transportation investments.

Direct Impacts

The No Project Alternative includes fewer transportation projects than the 2012-2035 RTP/SCS and does not include land use strategies beyond those put in place by local jurisdictions. Thus, transportation projects included in the No Project Alternative would be expected to directly consume or disturb fewer acres of agricultural lands and open space as compared to the Plan. The results of the GIS analysis indicate that projects included in the Plan would directly affect 733 acres of open space and recreational land, as compared to 185 acres under the No Project Alternative. However development anticipated under the Plan would consume only 334 square miles (212,800) as compared to 742 square miles (479,900 acres) anticipated to be consumed under the No Project Alternative.

The No Project Alternative is expected to accommodate the same increase in total population as the Plan. The Plan includes additional transportation improvements that facilitate access to agricultural lands, vacant lands, open space, and recreational lands that could be less accessible with the No Project Alternative. This improved accessibility under the Plan and could help facilitate population and economic growth in areas of the region that are currently not developed. However, the Plan also includes land use measures that would help reduce the consumption and disturbance of agricultural lands, vacant lands, open space, and recreation lands. These policies would not be adopted under the No Project Alternative (although individual jurisdictions are likely to adopt some of the growth strategies independently of the 2012-2035 RTP/SCS). **It is anticipated that because of the increased consumption of land under the No Project Alternative, it would have greater impacts as compared to impacts under the Plan.**

It is anticipated that the No Project Alternative would have less impact on existing urban parks and recreational facilities because of fewer transportation projects and a more dispersed growth pattern.

Cumulative

Both the plan and No Project Alternative would contribute to loss of recreational lands in California. The No Project Alternative would result in considerably more urbanization and loss or regional open space and would therefore have a much greater impact on cumulative loss of such land.

SOLID WASTE DISPOSAL AND TRANSFER FACILITIES

REGULATORY FRAMEWORK

Federal

Federal Agencies and Regulations. 40 CFR, Part 258 Subtitle D of the Resource Conservation and Recovery Act (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 delegated the enforcement responsibility to the State of California. California laws and regulations governing these facilities are summarized below.

State

California Integrated Waste Management Act. As many of the landfills in the state are approaching capacity and the siting of new landfills becomes increasingly difficult, the need for source reduction, recycling, and composting has become readily apparent. In response to this increasing solid waste problem, in September 1989 the state Assembly passed Assembly Bill (AB) 939, known as the California Integrated Waste Management Act. The Act requires every City and County in the state to prepare a Source Reduction and Recycling Element (SRRE) with its Solid Waste Management Plan that identifies how each jurisdiction will meet the mandatory state waste diversion goals of 25 percent by the year 1995 and 50 percent by the year 2000. Senate Bill 2202 mandates that jurisdictions continue 50 percent diversion on and after January 1, 2000. The purpose of AB 939 is to facilitate the reduction, recycling, and re-use of solid waste to the greatest extent possible. Noncompliance with the goals and timelines set forth within AB 939 can be severe, since the bill imposes fines of up to $10,000 per day on cities and counties not meeting these recycling and planning goals.[6]

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. In addition to these responsibilities, CIWMB also manages the Recycled-Content Materials Marketing Program to increase the understanding of and commitment to using specific recycled-content products in road applications, public works projects and landscaping. These products include recycled aggregate, tire-derived aggregate (TDA), rubberized asphalt concrete (RAC), and organic materials.

As discussed above AB 939 requires that each County in the state of California prepare a Countywide Integrated Waste Management Plan (CIWMP). The CIWMP is a countywide planning document that describes the programs to be implemented in unincorporated and incorporated areas of the county that will effectively manage solid waste, and promote and implement the hierarchy of the CIWMB. The CIWMPs consists of a Summary Plan (SP), a Source Reduction and Recycling Element (SRRE), a Household Hazardous Waste Element (HHWE), a Non-Disposal Facility Element (NDFE), and a Countywide Siting Element (CSE).[7]

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[6]CIWMB, "California Waste Stream Profiles: Jurisdictions," Retrieved December 14, 2007 from http://www.ciwmb.ca.gov/profiles/juris/.

[7]CIWMB, Countywide Integrated Waste Management Plan Enforcement, Retrieved November 8, 2007 from http://www.ciwmb.ca.gov/LgLibrary/Policy/CIWMPEnforce/Default.htm#Table

Local

Summary Plan (SP). A Summary Plan is a solid waste planning document required by Public Resources Code Section 41751, in which counties or regional agencies provide an overview of significant waste management problems faced by the jurisdiction, along with specific steps to be taken, independently and in concert with cities within their boundaries.

Source Reduction and Recycling Element (SRRE). The SRRE consists of the following components: waste characterization, source reduction, recycling, composting, solid waste facility capacity, education and public information, funding, special waste and integration. Each city and county is required to prepare, adopt, and submit to the Board an SRRE, which includes a program for management of solid waste generated within the respective local jurisdiction. The SRREs must include an implementation schedule for the proposed implementation of source reduction, recycling, and composting programs. In addition, the plan identifies the amount of landfill and transformation capacity that will be needed for solid waste which cannot be reduced, recycled, or composted.[8]

Household Hazardous Waste Element (HHWE). Each city and county is required to prepare, adopt and submit to the Board, a HHWE which identifies a program for the safe collection, recycling, treatment, and disposal of hazardous wastes that are generated by households. The HHWE specifies how household hazardous wastes generated by households within the jurisdiction must be collected, treated, and disposed. An adequate HHWE contains the following components: Evaluation of Alternatives, program selection, funding, implementation schedule and education and public information.[9]

Non-Disposal Facility Element (NDFE). Each city and county is required to prepare, adopt and submit to the Board, an NDFE which includes a description of new facilities and expansion of existing facilities, and all solid waste facility expansions (except disposal and transformation facilities) that recover for reuse at least five percent of the total volume. The NDFE are to be consistent with the implementation of a local jurisdiction's SRRE. Each jurisdiction must also describe transfer stations located within and outside of the jurisdiction, which recover less than five percent of the material received.[10]

Countywide Siting Element (CSE). Counties are required to prepare a CSE that describes areas that may be used for developing new disposal facilities. The element also provides an estimate of the total permitted disposal capacity needed for a 15-year period if counties determine that their existing disposal capacity will be exhausted within 15 years or if additional capacity is desired (PRC Sections 41700-41721.5).

Each county in the SCAG region has created a CIWMP in accordance with AB 939. Below is a brief description of the recent updates to these plans by county.

Imperial County

Imperial County's Integrated Waste Management Plan was comprehensively revised in 1998 and 1999. In 2003, the Nondisposal Facility element was amended to emphasize the development of medium and large volume transfer and processing stations at existing landfills to reduce operational costs. These facilities will be operated by the County and are expected to be located at the Brawley, Imperial, Holtville, and Picacho landfills. The Summary Plan identifies goals and policies to improve source reduction and recycling and includes specific programs to reduce the volume of tires and the amount of construction and demolition

[8]CIWMP Enforcement Part I: Plan Adequacy**.** As approved by the Board on November 17, 1993 http://www.ciwmb.ca.gov/LgLibrary/Policy/CIWMPEnforce/Part1/SRREAdq.htm , and Title 14, Chapter 9, of the California Code of Regulations (CCR): Articles 6.1, 6.2, and 7.0) Statutes: PRC sections 41000-41460.

[9]Title 14, Chapter 9, of the CCR: Article 6.3 and 7.0) Statutes: PRC Sections 41500-41510.

[10]Public Resources Code, Sections 41730-41736.

debris disposed of at county landfills. The plan will be assessed regularly and updated when necessary to reflect new goals and policies or proposed development of new facilities.

Los Angeles County

Los Angeles County is revising its Summary Plan and Siting Element to reflect changes in the County's policies and goals, including promotion of conversion technologies, formation of the Los Angeles Regional Agency, update of countywide jurisdiction assistance programs to meet diversion goals, expansion of existing disposal facilities, and development of additional non-disposal facilities for the use of out-of-county disposal facilities. Plan revisions are expected to be completed by 2012.

The County's 2009 Annual Report details the revision process, assesses remaining permitted capacity for the mandated 15-year planning horizon, and outlines seven disposal capacity scenarios, two of which project sufficient capacity to meet future demand through the use of conversion technologies and out-of-county disposal facilities. The Annual Report outlines county solid waste management challenges, including a projected shortfall of permitted disposal capacity in the county, insufficient markets for recovered materials, and steps to promote and develop conversion technologies.

Orange County

Orange County completed the first review of its CIWMP in April 2003. It found sufficient disposal capacity for the 15-year planning horizon, but identified other challenges, including the lack of an operational materials recovery facility in the southern portion of the county, changes in records management to comply with the Disposal Recovery System, and determination of accurate base year data.

In addition to the CIWMP, Orange County's Integrated Waste Management Department has initiated a long-term strategic planning project—the Regional Landfill Options for Orange County (RELOOC)—which assesses the solid waste disposal needs of Orange County for the next 40 years. RELOOC's 2007 Strategic Plan Update summarizes progress to maximize capacity at existing landfills, assess alternative technologies and potential out-of-county disposal sites, and expand the Frank R. Bowerman and Olinda Alpha landfills.

Riverside County

Riverside County's CIWMP was approved in 1996, and its 2010 Annual Report found the original plan remained applicable, so no comprehensive update is planned. The Non-disposal Facility Element was updated in 2009 and includes plans for four possible solid waste material recovery and transfer facilities; two of which would include household hazardous waste disposal facilities. The Element also includes an additional proposed solid waste material recovery facility with capacity for household hazardous waste disposal and one composting facility. The 2008 Five Year Review Report for the CIWMP concluded that the most effective allocation of available resources is to continue to utilize the existing CIWMP as a planning tool augmented by annual reports, and that a revision of the CIWMP is not warranted.

San Bernardino County

San Bernardino County CIWMP five-year review report was completed in 2007. The report reflects updates to the county's goals and policies, changes to its disposal facilities, and assesses disposal capacity for the mandated 15-year planning horizon. Updated policies include programs to help jurisdictions reach diversion goals, such as additional recycling and composting programs and the development of regional material recovery facilities. The 2007 review found that based on the remaining permitted refuse capacity and projected refuse generation for disposal, the landfills within the county have approximately 26 years of capacity.

Ventura County

Ventura County's CIWMP was approved in 1995 and 1996 and updated in 2000. In 2000, the county developed two disposal capacity scenarios for the 15-year time horizon: one involved expansion of the Simi Valley Landfill; the other planned for closure of the landfill and the resulting capacity shortfall. Expansion was approved in 2003, providing sufficient disposal capacity. The county submitted its most recent Five-Year Annual Review report in November 2010, which addressed future needs, plans, and policies. The report determined that there is at least 15 years of disposal capacity for Ventura County waste.

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.

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.

EXISTING SETTING

Solid Waste Disposal and Transfer Facilities

Over the past thirteen 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 3.11-7** shows data from the California Integrated Waste Management Board (CIWMB) regarding the number of tons disposed in 2010 (the most recent year for which information is available), for each county in the SCAG region.

TABLE 3.11-7: SOLID WASTE DISPOSED OF IN THE SCAG REGION - CY 2010

County	Total Tonnage
Imperial	224,740
Los Angeles	6,516,797
Orange	3,522,125
Riverside	3,089,583
San Bernardino	1,251,968
Ventura	878,468
SCAG Region	15,483,681
California	30,155,572

SOURCE: CIWMB Landfill Tonnage Reports, http://www.ciwmb.ca.gov/Landfills/Tonnages/, accessed August 11, 2011.

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. In Riverside County, the El Sobrante Landfill is licensed to accept up to 10,000 tons of waste per day from Riverside, Los Angeles, Orange, San Diego, and San Bernardino counties. In Ventura County, 25 percent of the waste accepted by the Simi Valley Landfill & Recycling Center comes from other counties. **Map 3.11-2**, located in Chapter 8.0, illustrates the location of landfills in the region and **Table 3.11-8** provides detailed information on permitted active solid waste landfills in the SCAG region.

TABLE 3.11-8: PERMITTED ACTIVE SOLID WASTE LANDFILLS IN THE SCAG REGION

Name	County	Closure Date	Maximum Daily Disposal (tons/day)	Maximum Capacity/a/ (cu yds)	Remaining Capacity/a/ (cu yds)
Allied Imperial Landfill	Imperial	3/1/2012	1,135	4,324,200	1,901,305
Calexico Solid Waste Site	Imperial	7/31/2071	150	2,064,598	1,117,639
Hot Spa Solid Waste Site	Imperial	4/1/2036	10	516,266	57,497
Imperial Solid Waste Site	Imperial	9/1/2015	207	1,936,000	183,871
Monofill Facility	Imperial	1/31/2025	750	1,729,800	1,058,252
Niland Solid Waste Site	Imperial	6/1/2040	55	131,000	44,053
Salton City Solid Waste Site	Imperial	12/31/2017	50	2,581,300	346,700
Antelope Valley Public Landfill	Los Angeles	9/1/2022	1,400	6,480,000	2,978,143
Burbank Landfill Site No. 3	Los Angeles	1/1/2053	240	5,933,365	5,107,465
Calabasas Sanitary Landfill	Los Angeles	9/30/2025	3,500	69,300,000	18,100,000
Chitquita Canyon Sanitary Landfill	Los Angeles	11/24/2019	6,000	63,900,000	29,300,000
Lancaster Landfill and Recycling Center	Los Angeles	8/2/2012	17,000	26,665,000	19,088,739
Pebbly Beach (Avalon) Disposal Site	Los Angeles	1/1/2020	49	143,142	104,100
Puente Hills Landfill	Los Angeles	10/31/2013	13,200	74,000,000	35,200,000
San Clemente Island Landfill	Los Angeles	1/1/2032	10	235,459	209,816
Savage Canyon Landfill	Los Angeles	12/31/2048	350	14,947,962	9,519,240
Scholl Canyon Sanitary Landfill	Los Angeles	12/31/2024	3,400	58,900,000	12,100,000
Sunshine Canyon City Landfill Unit 2	Los Angeles	12/31/2037	12,100	140,900,000	112,300,000
Frank R. Bowerman Sanitary LF	Orange	13/31/2022	8,500	127,000,000	59,411,872
Olinda Alpha Sanitary Landfill	Orange	12/31/2021	8,000	74,900,000	38,578,383
Prima Deshecha Sanitary Landfill	Orange	12/31/2067	4,000	172,900,000	87,384,799
Badlands Sanitary Landfill	Riverside	1/1/2024	4,000	33,560,993	14,730,025
Blythe Sanitary Landfill	Riverside	6/1/2047	400	6,034,148	4,159,388
El Sobrante Landfill	Riverside	1/1/2045	16,054	184,930,000	145,530,000
Lamb Canyon Sanitary Landfill	Riverside	4/30/2021	3,000	34,292,000	18,955,000
Oasis Sanitary Landfill	Riverside	10/31/2086	400	494,822	149,597
Barstow Sanitary Landfill	San Bernardino	5/1/2071	1,500	8,354,500	924,401
California Street Landfill	San Bernardino	1/1/2042	829	10,000,000	6,800,000
Colton Sanitary Landfill	San Bernardino	1/1/2017	3100	15,497,000	2,700,000
Fort Irwin Sanitary Landfill	San Bernardino	1/1/2045	100	19,000,000	18,935,202
Landers Sanitary Landfill	San Bernardino	1/1/2013	1,200	3,080,000	765,098
Mid-Valley Sanitary Landfill	San Bernardino	4/1/2033	7,500	101,300,000	67,520,000
Mitsubishi Cement Plant Cushenbury Landfill	San Bernardino	1/1/2034	40	520,400	221,600
San Timoteo Sanitary Landfill	San Bernardino	5/1/2016	1,000	20,400,000	11,360,000
USMC - 29 Palms Disposal Facility	San Bernardino	1/1/2076	100	10,945,000	10,821,000
Victorville Sanitary Landfill	San Bernardino	10/1/2047	3,000	83,200,000	81,510,000
Simi Valley Landfill & Recycling Center	Ventura	1/31/2027	3,000	43,500,000	20,575,377
Toland Road Landfill	Ventura	5/3/2027	1,500	30,000,000	21,983,000
		Total	**126,829**	**1,454,596,955**	**861,731,562**

/a/ Values for Maximum Capacity and Remaining Capacity are what are shown on web site. They may have been transposed.
SOURCE: CIWMB, *Solid Waste Information System,* http://www.calrecycle.ca.gov/SWFacilities/Directory/search.aspx, accessed August 11, 2011

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 percent and 50 percent diversion mandates of AB 939. Statewide, the CWIMB reports that diversion increased from 10 percent in 1989 to 42 percent in 2000 and to 48 percent in 2002. As of 2008, the six counties in the SCAG region had met their disposal target rates for waste diversion.

THRESHOLDS OF SIGNIFICANCE

Based on CEQA Appendix G and as appropriate for the 2012-2035 RTP/SCS, the Plan would have a significant impact related to solid waste disposal and transfer facilities if it would:

- 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.

Methodology

This following summarizes the methodology used to evaluate the expected impacts of implementation of the Plan on existing solid waste disposal and transfer facilities and associated environmental effects.

Cumulative Analysis

The 2012-2035 RTP/SCS addresses transportation projects and land use distribution patterns, including land use scenarios. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The Regional Travel Demand Model (RTDM) used for this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the 2012-2035 RTP/SCS, this Plan would influence growth, including distribution patterns, throughout the region. To address this, the analysis in the PEIR covers overall impacts of all transportation projects and land development described in the 2012-2035 RTP/SCS. In addition, this PEIR considers cumulative impacts from other regional plans (e.g., the South Coast Air Quality Management Plan), which could result in additional impacts inside and outside the region.

Comparison with the No Project Alternative

The analysis of solid waste disposal and transfer facilities 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 (which is based on a comparison to existing conditions); however, it provides a meaningful perspective on the effects of the 2012-2035 RTP/SCS.

Determination of Significance

The following analysis evaluates solid waste disposal and transfer facilities that could be affected by the implementation of the projects, programs, and policies identified in the Plan. Impacts to these facilities 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 above to the expected future (2035) demand for solid waste disposal and compares future demand with the Plan to the existing capacity. Implementation of the 2012-

2035 RTP/SCS will affect solid waste facilities. Expected significant cumulative impacts include a considerable increase in demand for solid waste disposal facilities throughout the SCAG region.

Both short-term construction related impacts and long-term or permanent impacts from new facilities potentially would result from implementation of the Plan. Below are descriptions of the types of direct impacts foreseeable from new transportation projects proposed in the 2012-2035 RTP/SCS. Indirect, cumulative impacts from implementation of the 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.

IMPACTS

Impact 3.11-8: Construction necessary to implement the 2012-2035 RTP/SCS would affect the demand for solid waste services in the SCAG region.

Many of the projects within the 2012-2035 RTP/SCS have the potential to generate a substantial amount of solid waste during construction, such as new transit lines, truck lanes, HOV connectors, and HST projects through grading and excavation activities as well as debris resulting from removal of structures. Construction of urban development would be expected to generate similar debris. Construction debris could be recycled or used as fill at other projects (clean dirt) or transported to the nearest landfill site and disposed of appropriately. Currently, several landfills in the SCAG region function at or below their permitted capacity (Table 3.11-8). The projects proposed under the 2012-2035 RTP/SCS are not anticipated to generate a significant amount of solid waste during construction such that local landfills would be significantly impacted. Nevertheless, the amount of debris generated during project construction would need to be evaluated prior to construction on a project-by-project basis. Increasing urban development would be expected to generate substantial solid waste. However, with increasingly stringent requirements to reduce, and recycle wastes impacts would be a lot less than have occurred as a result of growth in previous years. The mitigation measures described below would help to further reduce impacts.

Some transportation facilities could generate incremental amounts of waste (transit facilities – stations and debris collected from other facilities, also roadside waste).

Although 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 3.11-8, there may be insufficient waste disposal capacity where the waste is being generated. As a result, solid waste may need to be shipped by truck or rail from urbanized areas to the remote disposal locations in Riverside and Imperial Counties.

The 2012-2035 RTP/SCS includes all transportation and development in the region through 2035. Population of the SCAG region is forecast to increase by approximately 3.9 million people by 2035. The California Department of Resources Recycling and Recovery (CalRecycle) estimates that the average resident in California disposes of 4.5 pounds of trash per day.[11] Considering an average diversion rate of 50 percent, this equates to approximately 2.3 pounds of trash per day.[12] Assuming a similar generation rate, residents in Los Angeles County would generate approximately 26 million pounds of waste per day in 2035. Residents in the remaining counties in the SCAG region would generate approximately 25 million pounds of waste per day in 2035 for a regional total of approximately 51 million pounds per day, requiring landfilling.[13]

[11] CalRecycle, *California's Statewide Per Resident, Per Employee, and Total Disposal Since 1989*, available at: http://www.calrecycle.ca.gov/lgcentral/goalmeasure/disposalrate/graphs/disposal.htm, accessed December 2011.

[12] Assuming all jurisdictions meet the AB 939 diversion rate of 50 percent.

[13] CalRecycle, *California's Statewide Per Resident, Per Employee, and Total Disposal Since 1989*, available at: http://www.calrecycle.ca.gov/lgcentral/goalmeasure/disposalrate/graphs/disposal.htm, accessed December 2011.

Non-residential land uses also generate waste, and generally at a higher rate than residential uses. Based on data from CalRecycle, the average California employee generates 5.8 pounds of trash, assuming a 50 percent diversion rate. According to this data, the estimated 9.44 million employees within the SCAG region in 2035 would generate approximately 54.7 million pounds of waste per day, requiring landfilling.[14]

The SCAG region has existing capacity for solid waste (Table 3.11-8) and has several landfills that are scheduled to be open through the life of the plan. There is anticipated to be sufficient capacity for waste disposal in the region through 2035. However, as discussed above, there may be insufficient waste disposal capacity in the areas where the waste is being generated, in particular in the urbanized parts of the region. As a result, waste may need to be shipped by truck or rail from urbanized areas to the remote disposal locations in Riverside and Imperial Counties, where capacity exists.

Transporting 105.7 million pounds of waste per day to appropriate disposal areas would result in significant truck and rail trips and associated emissions. Implementation of Mitigation Measures **MM-PS35** through **MM-PS47** would reduce impacts to solid waste impacts, but impacts could still be significant because of the large volume of wastes and the need to move waste to landfills located at some distance from where the waste is generated.

Cumulative Impact 3.11-9: Potential to result in a cumulatively considerable demand on solid waste facilities that exceeds regional capacity.

The 2012-2035 RTP/SCS includes transportation projects and development in the region. The Plan targets growth and development in urbanized areas, in particular in HQTAs. While all of these areas are currently served by landfills, many landfills in the urbanized portions of the region are at or near capacity, resulting in a need to transport waste to less urban areas of the region, or outside the region. The transport of solid waste generated in the SCAG region possibly to areas outside the SCAG region would result in a cumulatively considerable impact to waste facilities in California. Implementation of Mitigation Measures **MM-PS48** through **MM-PS56** would reduce cumulative solid waste services impacts; however, impacts would remain significant.

MITIGATION MEASURES

Mitigation Measures **MM-PS35** through **MM-PS56** can and should be implemented by project sponsors (for both development and transportation projects) as applicable. Project specific environmental documents may adjust these mitigation measures as necessary to respond to site- specific conditions. Projects taking advantage of CEQA Streamlining provisions of SB 375 can and should apply mitigation measures as appropriate to site-specific conditions.

MM-PS35: Project sponsors for projects identified in the 2012-2035 RTP/SCS can and should comply with applicable regulations related to solid waste disposal.

MM-PS36: Projects sponsors can and should work with the respective local jurisdiction's Recycling Coordinator to ensure that source reduction techniques and recycling measures are incorporated into project construction.

MM-PS37: The amount of solid waste generated during construction will be estimated prior to construction, and appropriate disposal sites will be identified and utilized.

[14] *Ibid*.

MM-PS36: Project sponsors can and should integrate green building measures into project design such as those identified in the U.S. Green Building Council's Leadership in Energy and Environmental Design, energy Star Homes, Green Point Rated Homes, and the California Green Builder Program. These measures could include the following:

- Reuse and minimization of construction and demolition (C&D) debris and diversion of C&D waste from landfills to recycling facilities.
- The inclusion of a waste management plan that promotes maximum C&D diversion.
- Source reduction through (1) use of materials that are more durable and easier to repair and maintain, (2) design to generate less scrap material through dimensional planning, (3) increased recycled content, (4) use of reclaimed materials, and (5) use of structural materials in a dual role as finish material (e.g. stained concrete flooring, unfinished ceilings, etc.).
- Reuse of existing structure and shell in renovation projects.
- Design for deconstruction without compromising safety.
- Design for flexibility through the use of moveable walls, raised floors, modular furniture, moveable task lighting and other reusable building components.
- Development of indoor recycling program and space.

MM-PS37: Local jurisdictions and waste management agencies can and should discourage the siting of new landfills unless all other waste reduction and prevention actions have been fully explored. If landfill siting or expansion is necessary, landfills can and should be sited with an adequate landfill-owned, undeveloped land buffer to minimize the potential adverse impacts of the landfill in neighboring communities.

MM-PS38: Project sponsors can and should discourage exporting of locally generated waste outside of the SCAG region during the construction and implementation of a project. Disposal within the county where the waste originates can and should be encouraged as much as possible. Green technologies for long-distance transport of waste (e.g., clean engines and clean locomotives or electric rail for waste-by-rail disposal systems) and consistency with SCAQMD and 2012-2035 RTP/SCS policies can and should be required.

MM-PS39: Project sponsors can and should encourage waste reduction goals and practices and look for opportunities for voluntary actions to exceed the 50 percent waste diversion target.

MM-PS40: Project sponsors and local jurisdictions can and should encourage the development of local markets for waste prevention, reduction, and recycling practices by supporting recycled content and green procurement policies, as well as other waste prevention, reduction and recycling practices.

MM-PS41: Local jurisdictions can and should develop ordinances that promote waste prevention and recycling activities such as: requiring waste prevention and recycling efforts at all large events and venues; implementing recycled content procurement programs; and developing opportunities to divert food waste away from landfills and toward food banks and composting facilities.

MM-PS42: Local jurisdictions and waste management agencies can and should develop alternative waste management strategies such as composting, recycling, and conversion technologies.

MM-PS43: Project sponsors, local jurisdictions and waste management agencies, where practical and feasible, can and should develop and site composting, recycling, and conversion technology facilities that have minimum environmental and health impacts.

MM-PS44: Local jurisdictions can and should require the reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).

MM-PS45: Project sponsors can and should integrate reuse and recycling into residential industrial, institutional and commercial projects.

MM-PS46: Local jurisdictions can and should provide easy and convenient recycling opportunities for residents, the public, and tenant businesses.

MM-PS47: Local jurisdictions can and should provide education and publicity about reducing waste and available recycling services.

MM-PS48: The California Integrated Waste Management Board can and should continue to enforce solid waste diversion mandates that are enacted by the Legislature.

MM-PS49: Local jurisdictions can and should continue to adopt programs to comply with state solid waste diversion rate mandates and, where possible, can and should encourage further recycling to exceed these rates.

MM-PS50: Local jurisdictions can and should implement or expand city or county-wide recycling and composting programs for residents and businesses. This could include extending the types of recycling services offered (e.g., to include food and green waste recycling) and providing public education and publicity about recycling services.

MM-PS51: Local jurisdictions, waste management agencies and SCAG can and should coordinate regional approaches and strategic siting of waste management facilities.

MM-PS52: Local jurisdictions and waste management agencies can and should encourage and, where practical and feasible, facilitate the creation of synergistic linkages between community businesses and the development of eco-industrial parks and materials exchange centers where one entity's waste stream becomes another entity's raw material.

MM-PS53: Local jurisdictions and waste management agencies can and should prioritize siting of new solid waste management facilities including recycling, composting, and conversion technology facilities in conjunction with existing waste management or material recovery facilities.

MM-PS54: Local jurisdictions and waste management agencies can and should increase programs to educate the public and increase awareness of reuse, recycling, composting, and green building benefits and raise consumer education issues at the county and city level, as well as at local school districts and education facilities.

MM-PS55: For projects identified in the 2012-2035 RTP/SCS that require solid waste collection, project sponsors 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 can and should be identified in each project's CEQA documentation.

MM-PS56: The growth inducing potential of individual projects can and should be carefully evaluated so that the full implications of the projects are understood. Individual environmental documents should quantify indirect impacts (growth that could be facilitated or induced) on public services and utilities to the extent feasible. Lead and responsible agencies then will

make any necessary adjustments to the applicable General Plan. Any such identified adjustment should be communicated to SCAG.

SIGNIFICANCE OF IMPACTS AFTER MITIGATION

Demand for Solid Waste Services

Impacts related to the potential to the demand for solid waste services in the SCAG region were determined to be significant without mitigation. Implementation of Mitigation Measures **MM-PS35** through **MM-PS56** would reduce the impacts, but impacts would remain potentially significant because of the need to move solid waste large distances, potentially out of the region.

COMPARISION WITH THE NO PROJECT ALTERNATIVE

Under the No Project Alternative, the population of the SCAG region will grow by 3.9 million people, however, no regional transportation investments would be made above the existing programmed projects. The population distribution could follow past trends, uninfluenced by additional transportation investments.

Direct Impacts

The No Project Alternative contains fewer transportation projects than the Plan. With fewer transportation projects being constructed, the need for solid waste disposal facilities for construction related debris would be less under the No Project Alternative than under the Plan. However, the Plan's growth-related impacts would remain the same as the Plan and the No Project Alternative would result in the same regional population totals. The No Project Alternative would have a more dispersed growth pattern which is generally less efficient and could results in more waste (more green waste for example from more landscaping of the increased amount of urban land). **Plan impacts and No Project impacts could be similar in the total amount of waste generated.**

Cumulative Impacts

The No project Alternative would result in a less efficient growth pattern that could result in the generation of more solid waste than the Plan. **As with the Plan potential remains to move solid waste large distances, potentially out of the region resulting in a cumulative impact to solid waste facilities in California.**

ENERGY

Energy and greenhouse gas emissions are closely linked, so this subsection should be read together with section 3.6 Greenhouse Gas Emissions. Energy consumption is a large source of greenhouse gas emissions (GHGs) and regulations to address energy also address GHGs, therefore there is some overlap in the discussions in this subsection and Section 3.6.

REGULATORY FRAMEWORK

Public Utility Regulatory Policies Act of 1978 (PURPA) (Public Law 95-617). PURPA was passed in response to the unstable energy climate of the late 1970s. PURPA sought to promote conservation of electric energy. Additionally, PURPA created a new class of nonutility generators, small power producers, from which, along with qualified cogenerators, utilities are required to buy power.

PURPA was in part intended to augment electric utility generation with more efficiently produced electricity and to provide equitable rates to electric consumers. Utility companies are required to buy all electricity from "Qfs" (qualifying facilities) at avoided cost (avoided costs are the incremental savings associated with not having to produce additional units of electricity). PURPA expanded participation of nonutility generators in the electricity market, and demonstrated that electricity from nonutility generators could successfully be integrated with a utility's own supply. PURPA requires utilities to buy whatever power is produced by Qfs (usually cogeneration or renewable energy). Utilities want these provisions repealed, critics argue that it will decrease competition and impede development of the renewable energy industry. The Fuel Use Act (FUA) of 1978 (repealed in 1987) also helped Qfs become established. Under FUA, utilities were not allowed to use natural gas to fuel new generating technologies but Qfs which were by definition not utilities, were able to take advantage of abundant natural gas and abundant new technologies (such as combined-cycle). The technologies lowered the financial threshold for entrance into the electricity generation business as well as shortened the lead time for constructing new plants.

Energy Policy Act of 2005. On August 8, 2005, President George W. Bush signed the National Energy Policy Act of 2005 into law. This comprehensive energy legislation contains several electricity-related provisions that aim to:

- Help ensure that consumers receive electricity over a dependable, modern infrastructure;
- Remove outdated obstacles to investment in electricity transmission lines;
- Make electric reliability standards mandatory instead of optional; and
- Give Federal officials the authority to site new power lines in DOE-designated national corridors in certain limited circumstances.

Clean Air Act. Section 211(o) of the Clean Air Act (the Act), as amended by the Energy Policy Act of 2005, requires the Administrator of the Environmental Protection Agency (EPA) to annually determine a renewable fuel standard (RFS) which is applicable to refiners, importers and certain blenders of gasoline, and publish the standard in the Federal Register by November 30 of each year. On the basis of this standard, each obligated party determines the volume of renewable fuel that it must ensure is consumed as motor vehicle fuel. This standard is calculated as a percentage, by dividing the amount of renewable fuel that the Act requires to be blended into gasoline for a given year by the amount of gasoline expected to be used during

that year, including certain adjustments specified by the Act. The notice, published in November of 2011, included an RFS of 8.01 percent for 2011.[15]

State

The California Energy Commission and California Public Utilities Commission have jurisdiction over the investor-owned utilities (IOUs) in California. The California Energy Commission also collects information for the Los Angeles Department of Water and Power (LADWP) and the Burbank, Glendale and Pasadena Municipal Utilities.

California Building Energy Efficiency Standards: Title 24. California established statewide building energy standards following legislative action. The legislation required the standards to:

- Be cost effective;
- Be based on the building life cycle; and
- Include both prescriptive and performance-based approaches.

California's building efficiency standards (along with those of energy efficient appliances) have saved more than $56 billion in electricity and natural gas costs since 1978. It is estimated the standards will save an additional $23 billion by 2013.[16]

The standards have been periodically updated as technology and design have evolved. Generally, the standards are updated every three years. As a result of AB 970, passed in the fall of 2000 in response to the state's electricity crisis, an emergency update of the Standards went into effect in June 2001. The Commission then initiated an immediate follow-on proceeding to consider and adopt updated Standards that could not be completed during the emergency proceeding. The 2005 Building Energy Efficiency Standards were adopted in November 2003, took effect October 1, 2005. The Energy Commission has begun development of the 2012 update to the Building Energy Efficiency Standards.

Title 24 of the California Code of Regulations comprises the state Building Standards Code. Part 6 of Title 24 is the California Energy Code, which includes the building energy efficiency standards. The standards include provisions applicable to all buildings, residential and non-residential, which describe requirements for documentation and certificates that the building meets the standards. These provisions include mandatory requirements for efficiency and design of the following types of systems, equipment, and appliances:

- Air conditioning systems
- Heat pumps
- Water chillers
- Gas- and oil-fired boilers
- Cooling equipment
- Water heaters and equipment
- Pool and spa heaters and equipment
- Gas-fired equipment including furnaces and stoves/ovens
- Windows and exterior doors
- Joints and other building structure openings ("envelope")
- Insulation and cool roofs
- Lighting control devices.

The standards include additional mandatory requirements for space conditioning (cooling and heating), water heating and indoor and outdoor lighting systems and equipment in non-residential, high-rise residential, and hotel or motel buildings.

[15]USEPA, Office of Transportation and Air Quality, *EPA Finalizes 2011 Renewable Fuel Standards*, available at http://www.epa.gov/oms/fuels/renewablefuels/420f10056.pdf, accessed August 16, 2011.

[16]California Code of Regulations. Title 24, Part 6.

Mandatory requirements for low-rise residential buildings cover indoor and outdoor lighting, fireplaces, space cooling and heating equipment (including ducts and fans), and insulation of the structure, foundation, and water piping.

In addition to the mandatory requirements, the Standards call for further energy efficiency that can be provided through a choice between performance and prescriptive compliance approaches. (Separate sections apply to low-rise residential and to non-residential, high-rise residential, and hotel or motel buildings.) In buildings designed for mixed use (e.g., commercial and residential), each section must meet the standards applicable to that type of occupancy.[17]

The performance approach provides for the calculation of an energy budget for each building and allows flexibility in building systems and features to meet the budget. The energy budget addresses space-conditioning (cooling and heating), lighting, and water heating. Compliance with the budget is determined by the use of a CEC-approved computer software energy model. The alternative prescriptive standards require demonstrating compliance with specific minimum efficiency for components of the building such as building envelope insulation R-values, fenestration (areas, U-factor and solar heat gain coefficients of windows and doors) and heating and cooling, water heating and lighting system design requirements. These requirements vary depending on the building's location in the state's 16 climate zones.

The 2005 standards that became effective statewide October 1, 2005, include the following major changes:

- Updated energy budgets that recognize the time dependence of energy usage by season and time of day
- Incorporation of new federal appliance standards and other advances in technology emerging from the state's Public Interest Energy Research program
- Incorporation of new state standards for outdoor lighting and for indoor and outdoor signs
- Changes to improve the quality of construction and verification of reliable energy savings

Executive Order S-3-05. On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which establishes greenhouse gas (GHG) emission reduction targets for California, and directs the California Environmental Protection Agency Secretary to coordinate the oversight of efforts to achieve them.

The targets established by Governor Schwarzenegger call for a reduction of GHG emissions to 2000 levels by 2010; a reduction of GHG emissions to 1990 levels by 2020; and a reduction of GHG emissions to 80 percent below 1990 levels by 2050.

AB 32: Global Warming Solutions Act. Governor Arnold Schwarzenegger signed AB 32 (Global Warming Solutions Act) into law on September 27, 2006, requiring that the California Air Resources Board (ARB) reduce GHG emissions by 25 percent by 2020. In the interim, ARB will begin to measure the GHG emissions of the industries it determines to be significant emitters. The bill also provides the Governor the ability to invoke a safety valve and suspend the emissions caps for up to one year in the case of an emergency or significant economic harm.

AB 32 requires ARB to:

- Establish a statewide GHG emissions cap for 2020, based on 1990 emissions by January 1, 2008;
- Adopt mandatory reporting rules for significant sources of GHG by January 1, 2008;

[17]California Energy Commission, 2005 Building Energy Efficiency Standards for Residential and Nonresidential Buildings, P400-03-001F, Effective Date October 1, 2005, Section 100(f).

- Adopt a plan by January 1, 2009 indicating how emission reductions will be achieved from significant GHG sources; and
- Adopt a list of early actions by July 1, 2007 that can be implemented before January 1, 2010.

Executive Order S-20-06. This Executive Order directs ARB to collaborate with the Secretary for Environmental Protection and the Climate Action Team to develop a comprehensive market-based compliance program with the goal of creating a program that permits trading with the European Union, the Regional Greenhouse Gas Initiative and other jurisdictions. ARB shall consider the recommendations of the Market Advisory Committee in the development of the market-based compliance program

AB 1007, Alternative Fuels Plan. Assembly Bill (AB) 1007, (Pavley, Chapter 371, Statutes of 2005) requires the California Energy Commission (Energy Commission) to prepare a state plan to increase the use of alternative fuels in California (Alternative Fuels Plan). The Energy Commission must prepare the plan in partnership with the California Air Resources Board, and in consultation with the other state, federal and local agencies. In preparing the Alternative Fuels Plan, the Committee will incorporate and build on the work currently underway within the Bio-Energy Interagency Working Group, the work of other agencies, and also will examine the broader suite of alternative fuels that could benefit California's transportation market.

The State Alternative Fuels Plan approved by the Energy Commission on November 2, 2007 was mandated by AB 1007 (Pavley) aimed at cleaning the state's air, diversifying fuel sources and protecting the state from oil spikes that affect prices, the economy and jobs. The plan supports Governor Arnold Schwarzenegger's goal of reducing statewide greenhouse gases to 80 percent below 1990 levels by 2050.

To achieve this objective, the Alternative Fuels Plan, recommends that the Governor set targets on a gasoline gallon equivalent basis for use of 10 different alternative motor fuels in the on-road and off-road sectors by nine percent by 2012, 11 percent by 2017 and 26 percent by 2022. These targets do not apply to air, rail or marine fuel uses. These goals will require a dramatic expansion in the use of such fuels as electricity, compressed natural gas, hydrogen, renewable diesel, bio-diesel and ethanol in motor vehicles.

Also built into the Alternative Fuels Plan is a multi-part strategy to develop hybrid and electric vehicle technologies; build the infrastructure to deliver the alternative fuels; increase the blending of more biofuels into gasoline and diesel; improve the fuel efficiency of vehicles; and reduce miles traveled by California motorists with more effective land use planning.

Low Carbon Fuel Standard. On January 9 2007, Governor Schwarzenegger signed Executive Order S-01-07 to establish a Low Carbon Fuel Standard (LCFS) for transportation fuels sold in California. By 2020, the standard will reduce the carbon intensity of California's passenger vehicle fuels by at least ten percent. The LCFS will support AB 32 emissions targets as part of California's overall strategy to fight global warming.

AB 1493, Vehicle Climate Change Standards. AB 1493 required the State to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light-duty trucks. Regulations were adopted by ARB in September 2004.

SB 1368, Greenhouse Gas Emissions Performance Standard for Major Power Plant Investments. This law requires the California Energy Commission to develop and adopt by regulation a greenhouse gas emissions performance standard for long-term procurement of electricity by local publicly owned utilities. The California Energy Commission must adopt the standard on or before June 30, 2007 and must be consistent with the standard adopted by the CPUC for load-serving entities under their jurisdiction on or before February 1, 2007.

SB 107, Renewable Energy Procurement. This law, written by Senator Joseph Simitian (D-Palo Alto) requires investor owned utilities such as Pacific Gas and Electric, SCE and San Diego Gas and Electric, to

have 20 percent of its electricity come from renewable sources by 2010. Previously, state law required that this target be achieved by 2017.

California Solar Initiative. On January 12, 2006, the CPUC approved the California Solar Initiative (R.04-03-017), which provides $2.9 billion in incentives between 2007 and 2017. The CPUC will oversee a $2.5 billion program for commercial and existing residential customers, funded through revenues and collected from gas and electric utility distribution rates. Furthermore, the California Energy Commission (CEC) will manage $350 million targeted for new residential building construction, utilizing funds already allocated to the CEC to foster renewable projects between 2007 and 2011.

On March 2, 2006, the CPUC opened a proceeding to develop rules and procedures for the California Solar Initiative and to continue consideration of policies for the development of cost-effective, clean and reliable distributed generation (DG). On August 21, 2006, the Governor signed Senate Bill 1 (SB 1), which directs the CPUC and the Energy Commission to implement the CSI program consistent with specific requirements and budget limits set forth in the legislation and directs the CPUC and the Energy Commission to create 3,000 megawatts of new, solar-produced electricity by 2017.

The PUC has a rulemaking in progress to reconcile its decisions with SB 1, and it also continues to hold public workshops to continue designing program elements.

Current incentives provide an upfront, capacity-based payment for a new system. The CSI incentive system will change in 2007 when it moves to performance-based payments. In its August 24, 2006, decision, the CPUC shifted the program from volume-based to performance-based incentives and clarified many elements of the program's design and administration.[18]

AB 2075, Reducing Dependence on Petroleum

The CEC and ARB are directed by law (2000 AB 2075) to develop and adopt recommendations for reducing dependence on petroleum. A performance based goal is to reduce petroleum demand to 15 percent below 2003 demand. The options include:[19]

Near-Term Options (could be fully implemented by 2010)
- Use more fuel efficient replacement tires with proper inflation;
- Improve fuel economy in government fleets; and
- Improve private vehicle maintenance.

Mid-Term Options (could be fully implemented in the 2010-2020 time frame)
- Double fuel efficiency of current model light duty vehicles to 40 miles/gallon; and
- Use natural gas-derived Fischer-Tropsch fuel as a 33 percent blending agent in diesel.

Long-Term Options
- Introduce fuel cell light duty vehicles in 2012, increasing to 10 percent of new vehicle sales by 2020, and 20 percent by 2030.

[18]California Solar Initiative. Retrieved October 31, 2007 from http://www.gosolarcalifornia.ca.gov/csi/index.html.
[19]CEC/California Air Resources Board: Reducing California's Petroleum Dependence, August 14, 2003 Final, Adopted Joint Agency AB 2076 Report, publication # 600-03-006F.

Recommendations include:[20]

- The Governor and Legislature should adopt the recommended statewide goal of reducing demand for on-road gasoline and diesel to 15 percent below the 2003 demand level by 2020 and maintaining that level for the foreseeable future;
- The Governor and Legislature should work with the California delegation and other states to establish national fuel economy standards that double the fuel efficiency of new cars, light trucks and SUVs; and
- The Governor and Legislature should establish a goal to increase the use of non-petroleum fuels to 20 percent of on-road fuel consumption by 2020 and 30 percent by 2030.

SB 97, CEQA Guidelines for Greenhouse Gas Emissions. SB 97 requires the Governor's Office of Planning and Research (OPR) to prepare CEQA Guidelines for the mitigation of GHG emissions, including, but not limited to, effects associated with transportation or energy consumption. OPR was required to prepare these guidelines and transmit them to the Resources Agency by July 1, 2009. The Resources Agency was required to then certify and adopt the guidelines by January 1, 2010. OPR and the Resources Agency are required to periodically review the guidelines to incorporate new information or criteria adopted by ARB pursuant to the Global Warming Solutions Act, scheduled for 2012.

Local

Clean Cities Program. The U.S. Department of Energy's (DOE) Clean Cities Program promotes voluntary, locally based government/industry partnerships for the purpose of expanding the use of alternatives to gasoline and diesel fuel by accelerating the deployment of AFVs and building a local AFV refueling infrastructure. The mission of the Clean Cities Program is to advance the nation's economic, environmental and energy security by supporting local decisions to adopt practices that contribute to the reduction of petroleum consumption. Clean Cities carries out this mission through a network of more than 80 volunteer coalitions, which develop public/private partnerships to promote alternative fuels and vehicles, fuel blends, fuel economy, hybrid vehicles, and idle reduction..

San Gabriel Valley Energy Efficiency Partnership. In April 2006, the SCAG's Regional Council authorized SCAG's Executive Director to enter into a partnership with SCE to incentivize energy efficiency programs in the San Gabriel Valley Subregion. The partnership program agreement was fully executed on October 20, 2006 and the program will run through 2008. The main goal of the San Gabriel Valley Energy Wise Program (SGVEWP) is to save a combined 3,000,000 kWh by providing technical assistance and incentive packages to cities. The program is funded by California utility customers and administered by SCE under the auspices of the CPUC.

EXISTING SETTING

Energy Types, Sources and Providers

The major sources of energy in the SCAG region include petroleum, electricity, and natural gas. Renewable resources have become a major focus of recent energy policy with increased awareness of petroleum and natural gas constraints and air quality concerns. In addition, electric power generation accounts for approximately 34 percent of emissions from all sources across the United States in 2007, and generation of

[20]CEC/California Air Resources Board: Reducing California's Petroleum Dependence, August 14, 2003 Final, Adopted Joint Agency AB 2076 Report, publication # 600-03-006F.

electricity with fossil fuels and the use of natural gas are the second largest source of greenhouse gas emissions in the state.[21]

Petroleum products represent approximately 37 percent of the energy consumption in the U.S. Natural gas and coal each supply approximately 23 percent of the national energy demand. Nuclear power represents about 8 percent of the energy consumption and renewable energy represents approximately 7 percent of energy use.[22]

Current annual consumption in the U.S. is approximately 100.58 quadrillion (10^{15}) British thermal units (Btu)[23], which represents about 22 percent of the world's energy consumption.[24]

Petroleum and natural gas supply most of the energy consumed in California. Petroleum supplies 54 percent and natural gas supplies 33 percent of California's energy.[25] In 2008, California's transportation sector consumed about 15 billion gallons of gasoline and 3 billion gallons of diesel fuel; an increase of nearly 50 percent over the last 20 years.[26] Electricity generation requires nearly half of the natural gas consumed in California.[27] Nearly all of the state's transportation system is fueled currently by fossil fuels.[28]

California consumes more energy than any other state in the U.S. except Texas. However, in terms of energy consumption per person, California ranks 47th among the 51 states, including the District of Columbia. Current annual energy consumption in California (for all purposes including transportation) is approximately 8,006 trillion Btu, which represents approximately 8.5 percent of the nation's total energy consumption.[29]

Petroleum. The United States consumes approximately 25 percent of the world's oil, while making up 5 percent of the world's population.[30] In 2009, California consumed approximately 1.8 million barrels of oil per day or 9.6 percent of the United States' oil consumption.[31] The U.S. imported approximately 49 percent of the petroleum (including crude oil and refined petroleum products) that was consumed during 2010. Approximately 49 percent of these imports were from countries in the Western Hemisphere, including North,

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[21]California Environmental Protection Agency, *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*, December 2010, available at http://www.energy.ca.gov/2010publications/CAT-1000-2010-005/CAT-1000-2010-005.PDF, accessed August 22, 2011.

[22]United States Department of Energy, Energy Information Administration, *What are the major sources and user of energy in the United States?*, available at http://www.eia.gov/energy_in_brief/major_energy_sources_and_users.cfm, accessed August 16, 2011.

[23]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 on 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. One giga-watt hour (GWh) is equivalent to 1,000,000 kWh. 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.

[24]U.S. Energy Information Administration, International Energy Statistics, *Total Primary Energy Consumption*, available at: http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=44&pid=44&aid=2&cid=r1,&syid=2004&eyid=2008 &unit =QBTU, accessed August 16, 2011.

[25]California Energy Commission, California Energy Demand 2000-2010 Staff Report, (2000 June) page 3, Retrieved December 19, 2006 from http://www.energy.ca.gov/reports/2000-07-14_200-00-002.PDF

[26]California Energy Commission, *2010 Integrated Energy Policy Report Update*, available at: http://www.energy.ca.gov/2010publications/CEC-100-2010-001/CEC-100-2010-001-CMF.PDF, accessed August 16, 2011.

[27]California Energy Commission, Integrated Energy Policy Report, (2005, November 21) page 123.

[28]California Energy Commission, Alternative Transportation Fuels, Retrieved October 29, 2007 from http://www.energy.ca.gov/afvs/vehicle_fact_sheets/index.html

[29]United States Department of Energy, Energy Information Administration. State Energy Profiles-California, available at: http://205.254.135.24/state/state-energy-profiles-data.cfm?sid=CA#Consumption, accessed August 22, 2011.

[30]United States Department of Energy, *Oil: Crude and Petroleum Products Explained*, available at: http://www.eia.gov/energyexplained/index.cfm?page=oil_home#tab2, accessed August 22, 2011.

[31] United States Department of Energy, Energy Information Administration. State Energy Profiles-California, available at: http://205.254.135.24/state/state-energy-profiles-data.cfm?sid=CA#Consumption, accessed August 22, 2011.

South and Central America, and the Caribbean and U.S. Territories. Canada provides the largest share of imported crude oil and petroleum to the U.S. at 25 percent, followed by Saudi Arabia, Nigeria, Venezuela and Mexico. U.S. dependence on imported oil has dramatically declined since peaking in 2005. This trend is attributed to a combination of declining consumption and shifts in supply patterns as a result of the economic downturn after the financial crisis in 2008. In addition, increased use of ethanol and biodiesel, and gains in production of crude oil and natural gas have expanded domestic supplies and reduced the need for imports.[32]

California as a state ranks third in the U.S. in petroleum refining capacity and accounts for more than one-tenth of total U.S. production. California also ranks 1st in gasoline consumption and jet fuel consumption and 3rd in distillate fuel consumption.[33] California relies on oil produced within the state, Alaska, and foreign nations to supply its refineries and produce the petroleum that is used in automobiles and for other purposes. The percentage of oil that is imported from foreign nations over the past four years has ranged between 45 and 48 percent. Of the total 607 million barrels of oil refined in 2010, 38.1 percent came from in-state oil production, 14.2 percent came from Alaska and 47.6 percent came from foreign sources. Foreign sources of oil have surpassed Alaskan supplies and are reaching California supply levels.[34]

Oil is a finite and non-renewable resource and it is uncertain how future energy consumption trends will be sustained with the current political, environmental and technological constraints. Our nation's reliance on petroleum for our energy needs is even more problematic because of the global trend toward an inevitable turning point often referred to as "peak oil" the peak and then decline of global oil production. Peak oil is the point of maximum oil production whether from a single well, a country, or the planet as a whole. The maximum point of production is expected to happen when about half or slightly more of the ultimately recoverable oil has been produced. To be clear, peaking does not mean "running out." Rather, it indicates the point where global production can no longer be maintained or increased. Production will begin to decline, year after year. Geophysicist M. King Hubbert correctly predicted the 1971 peak in U.S. oil production and further predicted that sometime between 2005 and 2025, world oil production would reach a peak and begin a sharp decline.[35]

The International Energy Agency reported in July 2007 that the world will face an oil supply "crunch" within five years. This is due to faster than expected falls in supply in mature areas such as the North Sea and Mexico and new prospects in Russia are experiencing long delays. As a result, oil supply was expected to increase approximately one percent annually while demand was expected to grow at an annual rate of 2.2 percent.[36] In 2008, oil prices rose steeply, peaking in July 2008 at $147.30 per barrel; this run up in oil prices was attributed to a number of factors including reports from the U.S. Department of Energy and others showing a decline in petroleum reserves. In September 2008, the global economy took a sharp downturn; oil prices were reduced to around $40 per barrel in November 2008. Availability of oil remains uncertain and the timing of a potential crunch is unknown.

A world supply crunch will impact California and the SCAG region. A fuel shortage will take a toll on California's economy as consumers spend more of their household income on gasoline than ever before, particularly with development patterns that create long commutes without access to public transportation.

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[32]United States Department of Energy, Energy Information Administration. Petroleum, *How dependent are we on foreign oil?*, November 29, 2010, available at: http://www.eia.gov/energy_in_brief/foreign_oil_dependence.cfm, accessed August 22, 2011.

[33]United States Department of Energy, Energy Information Administration. State Energy Profiles-California, available at: http://www.eia.gov/state/state-energy-profiles-analysis.cfm?sid=CA, accessed August 22, 2011.

[34]California Energy Commission, Energy Almanac, *Monthly Receipts of Crude Oil by Source*, available at: http://energyalmanac.ca.gov/petroleum/statistics/2010_monthly_oil_sources.html, accessed August 22, 2011.

[35]Udall, R. and Andrews, S. (1999, January). When will the joy ride end? A petroleum primer. Hubbert Center Newsletter, 99(1), 1-8.

[36]International Energy Agency (July 2007). Medium Term Oil Market Report

High fuel prices also reduce profit margins for the manufacturing and industrial sectors, which pass the higher cost of their goods and services to consumers.

Natural Gas. Natural gas supply and demand data are compiled by the state's natural gas utilities in the annual California Gas Report and in the California Energy Commission's Integrated Energy Policy Report. Since 1994, California began to rely on natural gas from Canada and the Rocky Mountains region and has seen both the physical amount and the percentage produced within California as well as imported from the Southwest decrease. California imports approximately 85 percent of its natural gas supply from the Southwestern United States, the Rocky Mountains, and Canada. The remainder is produced in California.[37]

The SCAG region is served primarily by the investor-owned Southern California Gas Company (SoCalGas), a unit of Sempra Energy. SoCalGas provides natural gas service throughout the SCAG region, except for the southern portion of Orange County, and portions of San Bernardino County. 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. The Los Angeles Department of Water and Power utilizes natural gas for electrical generation in the City of Los Angeles. **Map 3.11-3**, located in Chapter 8.0, shows the gas utility service areas for the SCAG region.

Electricity. Local electricity distribution service is provided to customers within the SCAG region by both Investor-Owned Utilities (IOUs) and Publicly Owned Utilities (POUs). **Map 3.11-4**, located in the map chapter, shows the electric utility service areas for the SCAG region and **Table 3.11-9** shows the energy mix for these service providers. The two IOUs operating in the region are Southern California Edison (SCE) and San Diego Gas and Electric (SDG&E). SCE 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. The SCE territory also includes areas outside of SCAG including Inyo, Tulare, and Mono County as well as portions of Kern, Fresno, and Tolumne Counties. Southern California Edison delivers 78 percent of the retail electricity sales to residents and businesses in the SCAG region. SDG&E provides local distribution service to the southern portion of Orange County.[38] There are also 12 publicly owned utilities in the SCAG region including Anaheim, Azusa, Banning, Burbank, Cerritos, Colton, Glendale, Los Angeles, Pasadena, Riverside, and Vernon, and the Imperial Irrigation District. Together, these municipal utilities deliver electricity to over 2 million customers in the Southern California region that spans an area of 7,000 square miles and has a total population that exceeds 5 million.[39] The Los Angeles Department of Water and Power (LADWP) is the largest of the publicly owned electric utilities in Southern California, providing approximately 20 percent of the region's electricity.[40]

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[37]California Energy Commission, California Natural Gas Supply by Source, http://www.energy.ca.gov/naturalgas/statistics/gas_supply_by_source.html, accessed August 22, 2011.

[38]Southern California Gas Company, *Company Profile*, available at: http://www.socalgas.com/about-us/company-info.shtml, accessed August 22, 2011.

[39]Southern California Public Power Authority. *2009 Annual Report,* available at: http://www.scppa.org/Downloads/Annual%20Report/SCPPA_AR09.pdf, accessed August 22, 2011.

[40]California Energy Commission. *California Energy Demand 2010-2020 Adopted Forecast, Commission Report. (December 2009)*, CEC-200-2009-012-CMF, available at: http://www.energy.ca.gov/2009publications/CEC-200-2009-012/CEC-200-2009-012-CMF.PDF, accessed August 22, 2011.

TABLE 3.11-9: ENERGY MIX FOR ELECTRICITY SERVICE PROVIDERS IN THE SCAG REGION

		Source									
		Eligible Renewable					Non-Renewable				
Electricity Provider	County	Biomass and Waste	Geothermal	Small Hydro-electric	Solar	Wind	Coal	Large Hydro-electric	Natural Gas	Nuclear	Unspecified/a/
Azusa Light & Power	Los Angeles	--	--	--	--	13%	66%	6%	--	8%	7%
Burbank Water & Power	Los Angeles	<1%	<1%	1%	--	3%	38%	2%	37%	6%	13%
City of Cerritos/b/	Los Angeles	2%	9%	1%	1%	3%	10%	5%	51%	18%	<1%
City of Industry	Los Angeles	2%	9%	1%	1%	3%	10%	5%	51%	18%	<1%
City of Vernon Municipal Light Department	Los Angeles	2%	--	--	--	--	--	--	62%	8%	28%
Glendale Water & Power	Los Angeles	4%	2%	2%	<1%	8%	30%	5%	35%	7%	7%
Los Angeles Department of Water & Power	Los Angeles	2%	1%	6%	<1%	5%	41%	4%	30%	11%	<1%
Pasadena Water & Power	Los Angeles	8%	2%	--	--	6%	54%	4%	13%	6%	7%
Anza Electric Cooperative, Inc.	Riverside	--	--	--	--	--	92%	1%	7%	--	--
City of Banning Electric Department	Riverside	--	25%	--	--	--	46%	1%	--	14%	14%
City of Corona Department of Water & Power	Riverside	<1%	2%	6%	<1%	2%	32%	24%	31%	35	--
City of Riverside	Riverside	<1%	17%	<1%	<1%	<1%	50%	2%	1%	16%	13%
Moreno Valley Utility	Riverside	<1%	1%	--	<1%	1%	33%	18%	42%	5%	--
Morongo Band of Mission Indians	Riverside	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
City of Anaheim Public Utilities Department	Orange	1%	5%	<1%	<1%	3%	68%	3%	19%	--	--
San Diego Gas & Electric	Orange	3%	<1%	<1%	<1%	7%	7%	3%	62%	18%	--
Bear Valley Electric Service	San Bernardino	--	<1%	<1%	--	<1%	34%	18%	42%	5%	--
City of Needles	San Bernardino	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Colton Electric	San Bernardino	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Rancho Cucamonga Municipal Utility	San Bernardino	--	2%	6%	--	2%	32%	24%	31%	3%	--
Victorville Municipal Utilities Services	San Bernardino	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Imperial Irrigation District	Imperial	--	--	8%	--	--	29%	10%	48%	5%	--
Southern California Edison	All SCAG counties	2%	9%	1%	1%	3%	10%	5%	51%	18%	<1%

/a/ Unspecified = electricity from transactions that are not traceable to specific generation sources
/b/ Southern California Edison supplies energy to the City of Cerritos.
SOURCE: California Energy Commission, Power Content Label, October, 2011.

Alternative Energy Sources

Alternative Fuels. Alternative fuels, as defined by the Energy Policy Act of 1992, include ethanol, natural gas, propane, hydrogen, biodiesel, electricity, methanol, and p-series fuels. These fuels are being used worldwide in a variety of vehicle applications.[41] Use of these fuels for transportation can generally reduce air pollutant emissions and can be domestically produced and derived from renewable sources. The Energy Policy Act of 2005 further directed the Department of Energy to carry out a study to plan for the transition from petroleum to hydrogen in a significant percentage of vehicles sold by 2020. Alternative fueling stations within the SCAG region are shown on **Map 3.11-5**, located in Chapter 8.0. As shown therein, there are 529 alternative fueling stations within the SCAG region. The following descriptions of alternative fuels are from the United States Department of Energy's Alternative Fuels Data Center website.

Ethanol. Ethanol is a clear, colorless liquid. Blends of at least 85 percent ethanol are considered alternative fuels under the Energy Policy Act E85. A blend of 85 percent ethanol and 15 percent gasoline is used in flexible fuel vehicles (FFVs) that are currently offered by most major auto manufacturers. FFVs can run on gasoline, E85, or any combination of the two and qualify as alternative fuel vehicles under Energy Policy Act regulations.

Natural Gas. Natural gas is a mixture of hydrocarbons—mainly methane (CH4)—and is produced either from gas wells or in conjunction with crude oil production. The interest in natural gas as an alternative fuel for automobiles stems mainly from its clean burning qualities, its domestic resource base, and its commercial availability to end users. Because of the gaseous nature of this fuel, it must be stored onboard a vehicle in either a compressed gaseous state (CNG) or in a liquefied state (LNG).

Propane. Propane is produced as a by-product of natural gas processing and petroleum refining. Propane or liquefied petroleum gas (LPG) is a popular alternative fuel choice for vehicles because there is already an infrastructure of pipelines, processing facilities, and storage for its efficient distribution.

Hydrogen. Hydrogen is the simplest and lightest fuel is hydrogen gas (H2). Hydrogen is in a gaseous state at atmospheric pressure and ambient temperatures. Hydrogen is being explored for use in combustion engines and fuel cell electric vehicles. The ability to create hydrogen from a variety of resources and its clean-burning properties make it a desirable alternative fuel. Although there is no significant transportation distribution system currently for hydrogen transportation use, hydrogen could be transported and delivered using the established hydrogen infrastructure; for significant market penetration, the infrastructure will need further development.

Biodiesel. Biodiesel is a domestically produced, renewable fuel that can be manufactured from vegetable oils, animal fats, or recycled restaurant greases. Biodiesel is safe, biodegradable, and reduces serious air pollutants such as particulates, carbon monoxide, hydrocarbons, and air toxics. According to the U.S. Department of Energy, pure biodiesel (B100) is considered an alternative fuel under Energy Policy Act. Lower-level biodiesel blends are not considered alternative fuels, but covered fleets can earn one Energy Policy Act credit for every 450 gallons of B100 purchased for use in blends of 20 percent or higher.

Electricity. Electricity can be used as a transportation fuel to power battery electric and fuel cell vehicles. When used to power electric vehicles or EVs, electricity is stored in an energy storage device such as a battery. Fuel cell vehicles use electricity produced from an electrochemical reaction that takes place when hydrogen and oxygen are combined in the fuel cell "stack." The production of electricity using fuel cells takes place without combustion or pollution and leaves only two byproducts, heat and water.

[41] U.S. Department of Energy, Alternative Fuels Data Center, Retrieved October 29, 2007 from http://www.eere.energy.gov/afdc/fuels/index.html.

Electric vehicles have several different charging systems: 120-volt, 240-volt, direct-current, and inductive charging. An electric vehicle that accepts 120-volt power can do so from any standard electrical outlet with a 12- or 16-amp dedicated branch circuit (with no other receptacles or loads on the circuit). A 240-volt system requires the installation of a home charging station and is available at most public charging stations. Direct-current (DC) fast charging equipment (480 V) provides 50 kW to the battery. This option enables charging along heavy traffic corridors and at public stations. Inductive charging equipment was installed for all-electric vehicles in the early 1990s, such as the GM/Saturn EV-1, Toyota RAV4 EV, and the Chevy S10, and is still being used in certain areas. Some companies are working on inductive charging options for future electric drive vehicles. The most common types of electric vehicles use either 120-volt or 240-volt electrical systems

The U.S. Department of Energy's Advanced Vehicle Testing Activity (AVTA) promotes the use of electric vehicles in commercial fleets in the United States. During 1996, AVTA requested and received proposals from interested groups to become qualified vehicle testers (QVT). SCE headed one QVT. According to SCE, California's approximately 20,000 megawatts of excess off-peak (nighttime) electricity capacity would allow the charging of millions of electro-drive technologies without the need for new power generation facilities.[42]

Methanol. Methanol, also known as wood alcohol, can be used as an alternative fuel in flexible fuel vehicles that run on M85 (a blend of 85 percent methanol and 15 percent gasoline). However, it is not commonly used because automakers are no longer supplying methanol-powered vehicles. Today most of the world's methanol is produced by a process using natural gas as a feedstock. However, the ability to produce methanol from non-petroleum feedstocks such as coal or biomass is of interest for reducing petroleum imports.

P-Series fuel. P-Series fuel is a unique blend of natural gas liquids (pentanes plus), ethanol, and the biomass-derived co-solvent methyltetrahydrofuran (MeTHF). P-Series fuels are clear, colorless, 89-93 octane, liquid blends that are formulated to be used in flexible fuel vehicles (FFV's). P-Series are designed to be used alone or freely mixed with gasoline in any proportion inside the FFV's gas tank. These fuels are not currently being produced in large quantities and are not widely used.

Renewable Electricity. Electricity supply reliability depends, in part, on the diversity of energy sources. In 1978, congress passed the Public Utilities Regulatory Policies Act (PURPA). The act defines facilities that use alternative or renewable energy sources as "qualifying facilities." It provides financial incentives for their installation and requires utilities to sign long-term power purchase contracts with qualifying facilities. The California Public Utilities Commission (CPUC) has adopted contract incentives to assist qualifying facilities.

Qualifying facilities built in the SCAG region include wind and solar installations in Riverside and San Bernardino Counties and a number of cogeneration units around the region. **Map 3.11-6**, located in Chapter 8.0 (Maps), shows the location of solar and wind projects. Original provisions of PURPA encouraged the construction of biomass-to-energy facilities, which use materials such as agricultural and wood waste as fuel for energy production.

[42]Southern California Edison, Electric Transportation website. Retrieved October 29, 2007 fromhttp://www.sce.com/ Powerand Environment/ElectricTransportationNew/Energy/.

THRESHOLDS OF SIGNIFICANCE

Based on CEQA Appendix G and as appropriate for the 2012-2035 RTP/SCS, the Plan would have a significant impact related to energy if it would:

- Substantially increase the consumption of electricity, natural gas, gasoline, diesel, or other non-renewable energy types between the current conditions and 2035;
- 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 the use of large amounts of electricity and natural gas in a wasteful manner;
- Cause a cumulatively considerable increase in energy consumption and associated environmental effects; and/or
- Uncover and potentially sever underground utility lines.

Methodology

This section summarizes the methodology used to evaluate the expected impacts of implementation of the Plan on energy consumption and associated environmental effects. Estimated energy consumption in 2035 is expected to represent the most conservative (i.e., highest energy consumption of any year in the Plan) because population and employment are projected to be higher in this year than in any earlier year and future conservation efforts may not be fully quantified at this time. 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 future transportation fuel consumption, electricity, and natural gas consumption was determined by transportation modeling, while other uses were estimated for future year 2035 using the Rapid Fire Model Version 2.0, which provides estimated fuel consumption for the 2012-2035 RTP/SCS. Energy consumption for the other elements of the transportation plan was also estimated and evaluated. The electricity use rate for each county was based on the existing electricity consumption for residential and non-residential uses obtained from the California Energy Commission (CEC).[43] Existing dwelling units and employees in each county were used to obtain an electricity usage rate per dwelling unit and employee. Then, the electricity usage rate was multiplied by the correlating dwelling units and employees for the No Project Alternative and the 2012-2035 RTP/SCS to obtain the total electricity consumption in gigawatt (GWh)-hours for each county.

Natural gas consumption was obtained from the CEC, which provides data by county.[44] Existing dwelling units and employees in each county were used to obtain a natural gas usage rate per dwelling unit and employee. The natural gas use rate was multiplied by the correlating numbers for the No Project Alternative and the 2012-2035 RTP/SCS to obtain the total natural gas use in standard cubic feet per year each county.

Cumulative Analysis

The 2012-2035 RTP/SCS addresses transportation projects and land use distribution patterns, including land use scenarios. These land use distribution patterns identify growth distribution and anticipated land use development to accommodate growth projections. The Regional Travel Demand Model (RTDM) used for

[43]California Energy Commission, Electricity Consumption by County (2010), accessed November, 2011, available at: http://ecdms.energy.ca.gov/elecbycounty.aspx

[44]California Energy Commission, Gas Consumption by County accessed November, 2011, available at: http://www.ecdms.energy.ca.gov/gasbycounty.aspx.

this analysis captures pass-through traffic that does not have an origin or destination in the region, but does impact the region, so that too is included in the project analysis. Although a similar level of development is anticipated even without the 2012-2035 RTP/SCS, this Plan would influence growth, including distribution patterns, throughout the region. To address this, the analysis in the PEIR covers overall impacts of all transportation projects and land development described in the 2012-2035 RTP/SCS. In addition, this PEIR considers cumulative impacts from other regional plans (e.g., the South Coast Air Quality Management Plan), which could result in additional impacts inside and outside the region.

Comparison with the No Project Alternative

The analysis of energy resources includes a comparison between the expected future conditions with the Plan and the expected future conditions if no Plan were adopted (No Project). This evaluation is not included in the determination of the significance of impacts (which is based on a comparison to existing conditions); however, it provides a meaningful perspective on the expected effects of the 2012-2035 RTP/SCS.

Determination of Significance

The methodology for determining the significance of energy impacts compares existing conditions to the expected future energy consumption with the Plan. The criteria above were applied to compare current energy usage to expected future (2035) Plan conditions.

Implementation of the 2012-2035 RTP/SCS would affect the use of energy resources in the SCAG region. The analysis of these impacts is programmatic at the regional level. The Plan would result in energy impacts as a result of the following: energy demands for construction of transportation projects and development; energy demands for operation of the regional transportation system and the growing energy demand from growth associated with implementation of the 2012-2035 RTP/SCS. Project-specific impacts vary and appropriate mitigation measures would need to be developed on a project-by-project basis, as appropriate.

IMPACTS

Impact 3.11-10: Construction necessary to implement the 2012-2035 RTP/SCS 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 break those lines. Transportation projects such as new and widened highways and arterials, grade separations, and light and heavy rail projects, all involve excavation that could sever existing utility lines. In addition construction activities associated with growth associated would result in similar impacts. As part of the review and approval process local agencies normally require project sponsors to identify the locations of existing utility lines so that they may be avoided. Implementation of Mitigation Measure **MM-PS57** would reduce this underground utility line impacts to less than significance.

Impact 3.11-11: Potential to use electricity, natural gas, gasoline, diesel, and other non-renewable energy types in the construction and expansion of the regional transportation system and anticipated development.

Construction of the new elements of the regional transportation system as well as construction associated with anticipated development would 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 activities would result in the irreversible consumption of diesel fuel (and other fuels).

As mentioned in the environmental setting above, there is a potential for a significant decline in the amount of economically recoverable petroleum within the next ten years. If this decrease occurs, fuel prices (for all

grades of fuel) could increase dramatically, and the cost of owning and maintaining a vehicle could also increase dramatically. To help reduce the possible effects of this situation, greater use of alternative fuels, public transit, and non-motorized transportation options must be undertaken.

Forecasted urban development and growth that would be accommodated by the transportation investments, together with the increased mobility provided by the 2012-2035 RTP/SCS, would contribute to significant impacts related to non-renewable energy resources. **Table 3.11-10** summarizes the expected fuel consumption, as predicted by SCAG's Rapid Fire Model Version 2.0, between 2011 and 2035 with the investments in the 2012-2035 RTP/SCS and without (the No Project Alternative).

TABLE 3.11-10: PROJECTED SCAG REGION TRANSPORTATION FUEL CONSUMPTION

Alternative	Fuel Consumed (gallons per year)	Fuel Consumed (1000 gallons per day)	Percent Increase Over Existing
Existing	6.8 billion	18,630	--
No Project (Year 2035)	7.4 billion	20,274	8.8%
2012-2035 RTP/SCS (Year 2035)	5.6 billion	15,342	**-17.6%**

SOURCE: SCAG Transportation Modeling 2011.

Implementation of the 2012-2035 RTP/SCS would result in changes to land use patterns as it focuses on urban infill growth and walkable, mixed-use communities in existing and planned transit areas. In addition to a reduction in VMT, more mixed-use, walkable and urban infill development would accommodate a higher proportion of growth in more energy-efficient housing types like townhomes, apartments, and smaller single-family homes, as well as more compact commercial building types. As indicated in **Table 3.11-11**, forecast urban development and growth that would be accommodated by the transportation investments in the 2012-2035 RTP/SCS would result in less overall use of energy resources in 2035 than in 2011.

TABLE 3.11-11: ELECTRICITY AND NATURAL GAS CONSUMPTION FOR 2011, 2035 NO PROJECT AND 2035 WITH PROJECT

	Electricity (GWh/year)			Natural Gas (Million therms/year)		
County	2011	2035 No Project	2035 Plan	2011	2035 No Project	2035 Plan
Ventura	3,670	3,817	3,709	151.7	157.1	154.3
Riverside	9,501	11,045	10,916	361.8	419.1	411.6
Imperial	906	1,186	1,141	28.8	37.1	35.4
Orange	13,251	12,882	12,498	434.4	427.1	420.4
Los Angeles	44,198	44,069	42,598	1,789.4	1,791.0	1,762.1
San Bernardino	8,489	9,145	8,860	373.1	403.6	390.7
SCAG TOTAL	**80,013**	**82,144**	**79,723**	**3,139.0**	**3,235.1**	**3,714.7**

Electricity usage rates obtained from the California Energy Commission, California Electricity Consumption by County in 2011. Based on CEC data, electricity usage per capita will remained relatively constant.
Natural gas usage rates from the California Energy Commission, California Energy Demand 2010-2020 Staff Energy Demand Forecast. Based on CEC data, natural gas usage per capita will remain relatively constant.
SOURCE: SCAG (Rapid Fire Model), 2011; TAHA, 2011.

It is beyond the scope of this analysis to project how 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 being pursued, 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. The 2012-2035 RTP/SCS's emphasis on compact land use and growth patterns that facilitate transit and non-motorized transportation are anticipated to result in less energy consumption than if no plan were in place. Nonetheless, an increase in energy resources will be necessary to support the growing population. Implementation of Mitigation Measures **MM-PS57** through **MM-PS124** would reduce non-renewable energy consumption impacts; however, impacts would remain significant.

Cumulative Impacts 3.11-12 Potential to contribute to a cumulatively considerable increase in non-renewable energy use.

Worldwide energy consumption is increasing exponentially with third world countries increasingly adopting a western lifestyle. Worldwide supplies of oil are finite and the extent of existing reserves is unclear. The SCAG region accounts for about half of California's population and about half of its energy demand. As noted in the Regulatory Setting, the State (including the SCAG region) is aggressively pursuing GHG reduction that will also result in decreased energy consumption. Nonetheless the anticipated demand for energy would contribute to depleting energy reserves. **This is anticipated to be a cumulatively significant impact.**

MITIGATION MEASURES

Mitigation Measures **MM-PS57** through **MM-PS113** can and should be implemented by local jurisdictions and project sponsors as appropriate (for both development and transportation projects) as applicable. Project specific environmental documents may adjust these mitigation measures as necessary to respond to site-specific conditions. Projects taking advantage of CEQA Streamlining provisions of SB 375 can and should apply mitigation measures as appropriate to site-specific conditions. Mitigation Measures **MM-PS114** through **MM-PS124** shall be implemented by SCAG over the lifetime of the 2012-2035 RTP/SCS.

MM-PS57: Prior to construction, the project implementation agency can and should identify the locations of existing utility lines. The contractor shall avoid all known utility lines during construction.

MM-PS58: In reviewing projects Lead Agencies and project sponsors can and should consider energy implications of construction processes. In general the most energy efficient construction process and long-term operational design can and should be selected unless there is an overriding reason why not.

MM-PS59: Local jurisdictions can and should include energy analyses in environmental documentation and general plans with the goal of conserving energy through the wise and efficient use of energy. For any identified energy impacts, appropriate mitigation measures can and should be developed and monitored. SCAG recommends the use of Appendix F, Energy Conservation, of the *CEQA Guidelines.*

MM-PS60: Project sponsors can and should consider the most cost-effective alternative and renewable energy generation facilities.

MM-PS61: Project sponsors can and should require that projects use efficient lighting. (Fluorescent lighting uses approximately 75% less energy than incandescent lighting to deliver the same amount of light.)

MM-PS62: Project sponsors can and should require measures that reduce the amount of water sent to the sewer system. (Reduction in water volume sent to the sewer system means less water has to be treated and pumped to the end user, thereby saving energy.)

MM-PS63: Project sponsors can and should pursue incentives to encourage the use of energy efficient equipment and vehicles.

MM-PS64: State and federal lawmakers and regulatory agencies can and should pursue the design of programs to either require or incentivize the expanded availability including the expansion of alternative fuel filling stations and use of alternative-fuel vehicles to reduce the impact of shifts in petroleum fuel supply and price.

MM-PS65: Local jurisdictions can and should consider various best practices and technological improvements that can reduce the consumption of fossil fuels, such as:

- Expanding light-duty vehicle retirement programs
- Increasing commercial vehicle fleet modernization
- Implementing driver training module on fuel consumption
- Replacing gasoline powered mowers with electric mowers
- Reducing idling from construction equipment
- Incentivizing alternative fuel vehicles and equipment
- Developing infrastructure for alternative fueled vehicles
- Increasing use and mileage of High Occupancy Vehicle (HOV), High Occupancy Toll (HOT) and dedicated Bus Rapid Transit (BRT) lanes
- Implementing truck idling rule, devices, and truck-stop electrification
- Requiring electric truck refrigerator units
- Reducing locomotives fuel use
- Modernizing older off-road engines and equipment
- Implementing cold ironing at ports
- Encouraging freight mode shift
- Limit use and develop fleet rules for construction equipment
- Requiring zero-emission forklifts
- Developing landside port strategy with alternative fuels, clean engines, and electrification

MM-PS66: Local jurisdictions or agencies with purview over utilities can and should, as practical and feasible, streamline permitting and provide public information to facilitate accelerated construction of geothermal, solar and wind power generation facilities and transmission line improvements.

MM-PS67: Utilities can and should increase capacity of existing transmission lines to meet forecast demand that supports sustainable growth, where feasible and appropriate in coordination with local planning agencies.

MM-PS68: Project sponsors can and should support programs to reduce single occupancy vehicle trips such as telecommuting, ridesharing, alternative work schedules, and parking cash-outs.

MM-PS69: Project sponsors can and should submit projected electricity and natural gas demand calculations to the local electricity or natural gas provider, for any project anticipated to require substantial utility consumption. Any infrastructure improvements necessary for project construction can and should be completed according to the specifications of the energy provider.

MM-PS70: Project sponsors can and should encourage, to the extent practical and feasible, ensure that new buildings incorporate solar panels in roofing and tap other renewable energy sources to offset new demand on conventional power sources. For example, transit providers can and should, as feasible, assure that designers of new transit stations incorporate solar panels in roofing.

MM-PS71: Project sponsors can and should encourage energy efficient design for buildings, potentially including strengthening local building codes for new construction and renovation to achieve a higher level of energy efficiency. This may include strengthening local building codes for new construction and renovation to require a higher level of energy efficiency.

MM-PS72: Local jurisdictions can and should seek funding through utility-sponsored programs to conduct energy efficiency "tune-ups" of existing buildings, as practical and feasible, by checking, repairing, and readjusting heating, ventilation, air conditioning, lighting, hot water equipment, insulation and weatherization.

MM-PS73: Project sponsors can and should provide individualized energy management services for large energy users.

MM-PS74: Local jurisdictions and project sponsors can and should encourage the use of energy efficient appliances and office equipment.

MM-PS75: Project sponsors can and should pursue incentives and technical assistance for lighting efficiency.

MM-PS76: Local jurisdictions can and should provide public education and publicity about energy efficiency programs and incentives in cooperation with local utility providers.

MM-PS77: If a carbon trading system is established, a lead agency may consider whether carbon offsets would be an appropriate means of project mitigation. The project sponsor could, for example, fund off-site projects (e.g., alternative energy projects) that will reduce carbon emissions, or could purchase "credits" from another entity that will fund such projects. The lead agency can and should ensure that any mitigation taking the form of carbon offsets is specifically identified and that such mitigation will in fact occur.

MM-PS78: Local jurisdictions can and should encourage the integration of green building measures into project design and zoning such as those identified in the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED), Energy Star Homes, Green Point Rated Homes, and the California Green Builder Program. Energy saving measures for new and remodeled buildings include:

- Using energy efficient materials in building design, construction, rehabilitation, and retrofit
- Encouraging new development to exceed Title 24 energy efficiency requirements
- Developing Cool Communities measures including tree planting and light-colored roofs. These measures focus on reducing ambient heat, which reduces energy consumption related to air conditioning and other cooling equipment.
- Utilizing efficient commercial/residential space and water heaters: This could include the advertisement of existing and/or development of additional incentives for energy efficient appliance purchases to reduce excess energy use and save money. Federal tax incentives are provided online at http://www.energystar.gov/index.cfm?c= Productspr_tax_credits.
- Encouraging landscaping that requires no additional irrigation: utilizing native, drought tolerant plants can reduce water usage up to 60 percent compared to traditional lawns.
- Encouraging combined heating and cooling, also known as cogeneration, in all buildings.
- Encouraging neighborhood energy systems, which allow communities to generate their own electricity
- Orienting streets and buildings for best solar access

- Encouraging buildings to obtain at least 20 percent of their electric load from renewable energy

MM-PS79: Project sponsors can and should install energy efficient lighting (e.g., light emitting diodes (LEDs)), heating and cooling systems, appliances, equipment, and control systems.

MM-PS80: Project sponsors can and should use passive solar design, e.g., orient buildings and incorporate landscaping to maximize passive solar heating during cool seasons, minimize solar heat gain during hot seasons, and enhance natural ventilation.

MM-PS81: Project sponsors can and should design buildings to take advantage of sunlight.

MM-PS82: Project sponsors can and should install light colored "cool" roofs and cool pavements.

MM-PS83: Install efficient lighting, (including LEDs) for traffic, street and other outdoor lighting.

MM-PS84: Project sponsors can and should reduce unnecessary outdoor lighting.

MM-PS85: Project sponsors can and should use automatic covers, efficient pumps and motors, and solar heating for pools and spas.

MM-PS86: Project sponsors can and should provide education on energy efficiency to residents, customers and/or tenants.

MM-PS87: Project sponsors can and should use paving materials with a Solar Reflective Index (SRI) of at least 29, or open grid paving systems.

MM-PS88: Project sponsors can and should use roofing material with SRI of at least 29 on covered parking (underground, beneath decking or roofs, or beneath a building).

MM-PS89: Local jurisdictions can and should adopt a Heat Island Mitigation Plan that requires cool roofs, cool pavements, and strategically placed shade trees, and actively inspect and enforce state requirements for cool roofs on non-residential re-roofing projects.

MM-PS90: Local jurisdictions can and should pursue policies and programs to improve energy efficiency of existing buildings.

MM-PS91: Local jurisdictions can and should require the performance of energy audits for residential and commercial buildings prior to completion of sale, and that audit results and information about opportunities for energy efficiency improvements be presented to the buyer.

MM-PS92: Local jurisdictions can and should create an outreach and incentive program to promote energy efficiency and conservation in the community, including:

- Launch an "energy efficiency challenge" campaign for community residents;
- Implement a low-income weatherization assistance program;
- Implement conservation campaigns specifically targeted to residents, and separately to businesses;
- Promote the purchase of Energy Star® appliances, including, where feasible, incentive grants and vouchers;
- Promote participation in the local "Green Business" program;
- Distribute free CFL bulbs or other efficiency fixtures to community members;

- Offer exchange programs for high-energy-use items, such as halogen torchiere lamps;
- Adopt an ordinance requiring energy upgrades at time of property sale.

MM-PS93: Project sponsors can and should install solar, wind, and geothermal power systems and solar hot water heaters.

MM-PS94: Project sponsors can and should install solar panels on unused roof and ground space and over carports and parking areas.

MM-PS95: Project sponsors can and should include energy storage where appropriate to optimize renewable energy generation systems and avoid peak energy use.

MM-PS96: Project sponsors can and should use combined heat and power (CHP) in appropriate applications.

MM-PS97: Local jurisdictions can and should identify possible sites for production of renewable energy (such as solar, wind, small hydro, and biogas), as compatible with surrounding uses, and protect and promote that use, including:

- Designate suitable sites to prioritize their development for renewable energy generation;
- Evaluate potential land use, environmental, economic, and other constraints on that use, and mitigate such constraints, as feasible;
- Adopt measures to protect the renewable energy use of the sites and their resources, such as utility easements, rights-of-way, and land set-a-sides.

MM-PS98: Local jurisdictions can and should allow renewable energy projects in areas zoned for open space, where consistent with the Open Space element, and other uses and values.

MM-PS99: Local jurisdictions can and should promote and require renewable energy generation, and co-generation projects where feasible and appropriate.

MM-PS100: Local jurisdictions can and should require that new office/retail/commercial or industrial development, or major rehabilitation (e.g., additions of 25,000 square feet commercial, or 100,000 square feet industrial) incorporate renewable energy generation either on- or off-site to provide 15 percent or more of the project's energy needs.

MM-PS101: Local jurisdictions can and should promote and encourage cogeneration projects for commercial and industrial facilities, provided they meet all applicable air quality standards and provide a net reduction in GHG emissions associated with energy production.

MM-PS102: Local jurisdictions can and should require that, where feasible, all new buildings be constructed to allow for easy, cost-effective installation of solar energy systems in the future, using such "solar-ready" features as:

- Designing the building to include optimal roof orientation (between 20 to 55 degrees from the horizontal), with sufficient south-sloped roof surface;
- Clear access without obstructions (chimneys, heating and plumbing vents, etc.) on the south sloped roof;
- Designing the roof framing to support the addition of solar panels;
- Installation of electrical conduit to accept solar electric system wiring;
- Installation of plumbing to support a solar hot water system and provision of space for a solar hot water storage tank.

MM-PS103: Local jurisdictions can and should require that residential projects of 6 units or more participate in the California Energy Commission's New Solar Homes Partnership, which provides rebates to developers who offer solar power in at least 50 percent of new units, or a program with similar provisions.

MM-PS104: Local jurisdictions can and should require that any building constructed in whole or in part with local jurisdiction funds incorporate passive solar design features, such as daylighting and passive solar heating, where feasible.

MM-PS105: Local jurisdictions can and should protect active and passive solar design elements and systems from shading by neighboring structures and trees, as consistent with existing tree shading requirements.

MM-PS106: Local jurisdictions can and should provide, where feasible, creative financing for renewable energy projects, including subsidized or other low-interest loans, and the option to pay for system installation through long-term assessments on individual property tax bills.

MM-PS107: Local jurisdictions can and should pursue partnerships with other governmental entities and with private companies and utilities to establish incentive programs for renewable energy.

MM-PS108: Local jurisdictions can and should establish and maintain a clearinghouse of information on available funding alternatives for renewable energy projects, rates of return, and other information to support developers and community members interested in pursuing renewable energy projects.

MM-PS109: Local jurisdictions can and should establish targets for the purchase of renewable energy, in excess of the state Renewable Portfolio Standards, using such mechanisms as green tags or renewable energy certificates.

MM-PS110: Local jurisdictions can and should evaluate the feasibility and effectiveness of using Community Choice Aggregation as a model for providing renewable energy to meet the community's electricity needs, including potential partnerships with other jurisdictions.

MM-PS111: Local jurisdictions can and should prepare and implement a comprehensive plan to improve energy efficiency of municipal facilities, including:

- Conduct energy audits for all municipal facilities;
- Retrofit facilities for energy efficiency where feasible and when remodeling or replacing components, including increased insulation, installing green or reflective roofs and low-emissive window glass;
- Implement an energy tracking and management system;
- Install energy-efficient exit signs, street signs, and traffic lighting;
- Install energy-efficient lighting retrofits and occupancy sensors, and institute a "lights out at night" policy;
- Retrofit heating and cooling systems to optimize efficiency (e.g., replace chillers, boilers, fans, pumps, belts, etc.);
- Install Energy Star® appliances and energy-efficient vending machines;
- Improve efficiency of water pumping and use at municipal facilities, including a schedule to replace or retrofit system components with high-efficiency units (i.e., ultra-low-flow toilets, fixtures, etc.);
- Provide chilled, filtered water at water fountains and taps in lieu of bottled water;
- Install a central irrigation control system and time its operation for off-peak use;

- Adopt an accelerated replacement schedule for energy inefficient systems and components.

MM-PS112: Local jurisdictions can and should require that any newly constructed, purchased, or leased municipal space meet minimum standards as appropriate, such as:

- Requirements for new commercial buildings to meet LEED criteria established by the U.S. Green Building Council;
- Requirements for new residential buildings to meet criteria of the Energy Star® New Homes Program established by USEPA;
- Incorporation of passive solar design features in new buildings, including daylighting and passive solar heating;
- Retrofitting of existing buildings to meet standards under Title 24 of the California Building Energy Code, or to achieve a higher performance standard as established by the local jurisdiction;
- Retrofitting of existing buildings to decrease heat gain from non-roof impervious surfaces with cool paving, landscaping, and other techniques.
- Training & Support: Local jurisdictions or agencies can and should ensure that staff receives appropriate training and support to implement objectives and policies to reduce GHG emissions, including:
- Provide energy efficiency training to design, engineering, building operations, and maintenance staff;
- Provide information on energy use and management, including data from the tracking and management system, to managers and others making decisions that influence energy use;
- Provide energy design review services to departments undertaking new construction or renovation projects, to facilitate compliance with LEED standards.

MM-PS113: Local jurisdictions can and should collaborate with local energy suppliers and distributors to establish energy conservation programs, Energy Star® appliance change-out programs, rebates, vouchers, and other incentives to install energy-efficient technology and products and to cooperate on advertising.

MM-PS114: SCAG shall encourage methane recovery in local landfills and wastewater treatment plants to generate electricity.

MM-PS115: SCAG shall continue to consider energy uncertainty impacts prior to the development of the next RTP/SCS. Topics that shall be considered include:

- How the price and availability of transportation fuels affects revenues and demand;
- How increases in fuel efficiency could affect revenues and emissions;
- How the cost of commuting and personal travel affects mode choice and growth patterns;
- How the cost of goods movement affects international trade and employment; or
- How the escalation of fuel prices affects the cost of infrastructure construction, maintenance and operation.

MM-PS116: SCAG shall convene key stakeholders to evaluate and where feasible, recommend transportation measures such as congestion pricing, a refined regional goods movement system and technologies that reduce fossil fuel consumption.

MM-PS117: SCAG shall encourage clean post-recycle conversion technologies to produce energy or technologies that offset energy use or air emissions.

MM-PS118: SCAG shall continue to develop energy efficiency and green building guidance to provide direction on specific approaches and models and to specify levels of performance for regionally significant projects to be consistent with regional plans.

MM-PS119: SCAG shall encourage the federal and state government to increase clean, cost-effective, reliable, domestic renewable energy generation, such as solar and wind turbines.

MM-PS120: SCAG shall continue to promote electric vehicle penetration throughout the region through ongoing electric vehicle readiness efforts.

MM-PS121: SCAG shall encourage the federal government to increase the Corporate Average Fuel Economy (CAFE) to a level that will reduce the region's dependence on petroleum and reduce greenhouse gas emissions.

MM-PS122: SCAG shall continue to pursue partnerships with Southern California Edison, municipal utilities, and the California Public Utilities Commission to promote energy efficiency and reduce greenhouse gas emissions in the region.

MM-PS123: SCAG shall continue to develop, in coordination with the California Air Resources Board, a data and information collection and analysis system that provides an understanding of energy demand and greenhouse gas emissions in the SCAG region.

MM-PS124: SCAG shall continue to work with local jurisdictions and energy providers, through its Energy and Environment Committee, and administration of the Clean Cities Program as well as by 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.

SIGNIFICANCE OF IMPACTS AFTER MITIGATION

Utility Lines

Impacts related to the potential to uncover and sever underground utility lines were determined to be significant without mitigation. Implementation of Mitigation Measure **MM-PS57** would reduce the impacts to less than significance.

Non-renewable Energy Consumption

Implementation of Mitigation Measures **MM-PS58** through **MM-PS63** would reduce potential impacts to energy sources during construction and expansion of the transportation system and development in the region. However, given the large amount of construction anticipated for the region, the energy that would be consumed by construction is anticipated to be significant. Therefore, impacts to energy use would remain significant after mitigation.

Cumulative Impact

Implementation of Mitigation Measures **MM-PS64** through **MM-PS124** would reduce the cumulatively considerable impacts related to consumption of non-renewable energy. However, given the current and anticipated future demand on finite energy resources, impacts would remain significant after mitigation.

COMPARISION WITH THE NO PROJECT ALTERNATIVE

In the No Project Alternative, the regional population is projected to be the same as the Plan, 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, resulting in a less compact growth pattern.

Direct Impacts

The No Project Alternative would result in the construction of approximately 68,040 new lane miles compared with over 74,297 new lane miles in the 2012-2035 RTP/SCS, thereby resulting in decreased consumption of non-renewable energy resources for construction activities as compared to the Plan. Less transportation-related construction under the No Project Alternative would reduce the likelihood to uncover or sever an underground utility line. The No Project Alternative's impacts would be less than the Plan for transportation projects. With a more dispersed development pattern development would be occurring in areas not previously disturbed and with fewer buried utility lines. Therefore impacts described in Impact 3.11-10 could be less under the No Project Alternative.

As mentioned above, the No Project Alternative would result in the construction of approximately 68,040 new lane miles compared with over 74,297 new lane miles in the 2012-2035 RTP/SCS. However, as shown in **Table 3.11-10** above, the total projected use of transportation fuels would be greater under the No Project Alternative than under the 2012-2035 RTP/SCS. This difference would result from greater VMT as a result of development under the No Project Alternative continuing the same patterns of growth that the region has experienced in past decades, relying heavily on growth in undeveloped agricultural lands and open spaces at the edges of cities and beyond. The No Project Alternative would consume approximately 742 square miles, as opposed to 334 square miles under the 2012-2035 RTP/SCS. The No Project Alternative would result in 547 million VMT per day by 2035, as opposed to 517 million VMT per day under the Plan. The Plan with more mixed-use, walkable communities, and urban infill development, accommodate a higher proportion of growth in more energy-efficient housing types like townhomes, apartments, and smaller single family homes, as well as more compact commercial building types. By contrast, a large proportion of standard development, such as that which is anticipated to occur under the No Project Alternative, leads to a higher proportion of larger single-family homes, which are typically less energy-efficient. Assuming the same efficiency standards for both scenarios, there would be marked differences in energy use due to land use-related variations. Compared to the No Project Alternative scenario, the Plan uses eight percent less energy per year. **The No Project Alternative's impacts would be greater than the Plan for Cumulative Impact 3.11-11.**

Cumulative Impacts

The No Project Alternative would result in a less efficient growth pattern resulting in greater consumption of energy by buildings and mobile sources. **The No Project Alternative would result in a greater demand for energy and therefore a greater cumulative impact as compared to the Plan (Impact 3.11-12).**